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# AUDUBON MAGAZINE

A BI-MONTHLY MAGAZINE DEVOTED  
TO THE PROTECTION AND PRESER-  
VATION OF OUR NATIVE WILDLIFE

*Our Motto: A BIRD IN THE BUSH IS WORTH TWO IN THE HAND*

ELEANOR ANTHONY KING, *Editor*

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# AUDUBON'S ISLAND

**Picture-Story by Edwin Way Teale**

*Bird Photographs by Allan D. Cruickshank*

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PALE-GREEN water sliced back along the bow of the *Spoonbill* with a diminishing hiss. Warden Arthur Eiffer cut the switch. The churn and lash of the propeller suddenly ceased. Before us, under a sunset sky, lay a low island. It was shaped like a mile-long letter "L." Beyond, to the west, the Gulf of Mexico stretched away for upwards of a thousand miles. The island was Sandy Key at the mouth of Florida Bay.

Just one century, one decade, and one year before, a heavy rowboat, manned by sunburned oarsmen, had ground to a stop on the beach of this same island. It had carried John James Audubon on his memorable visit to Sandy Key.

It was at Sandy Key that Audubon first glimpsed that magnificent and stately bird, the largest of its kind, the great white heron. It was at Sandy Key that he collected three specimens of the European greenshanks, the only record for this bird on the North American continent. It was here that he observed—at one of its peaks—the incredibly rich bird life of the early eighteen-thirties.

"The flocks of birds that covered the shelly beaches, and those hovering overhead," Audubon recorded in his *Journal*, "so astonished us that we could for a while scarcely believe our eyes. Rose-colored curlews stalked gracefully beneath the mangroves. Purple herons rose at almost every step we took, and each cactus supported the nest of a white ibis. The air was darkened by whistling wings while, on the waters, floated purple gallinules. . . . Of fish-crows, I could not estimate the number. . . . Frigate pelicans chased the jaeger, which himself had just robbed a poor gull of

its prize, and all the gallinules ran with spread wings from the mud-banks to the thickets of the island. . . ."

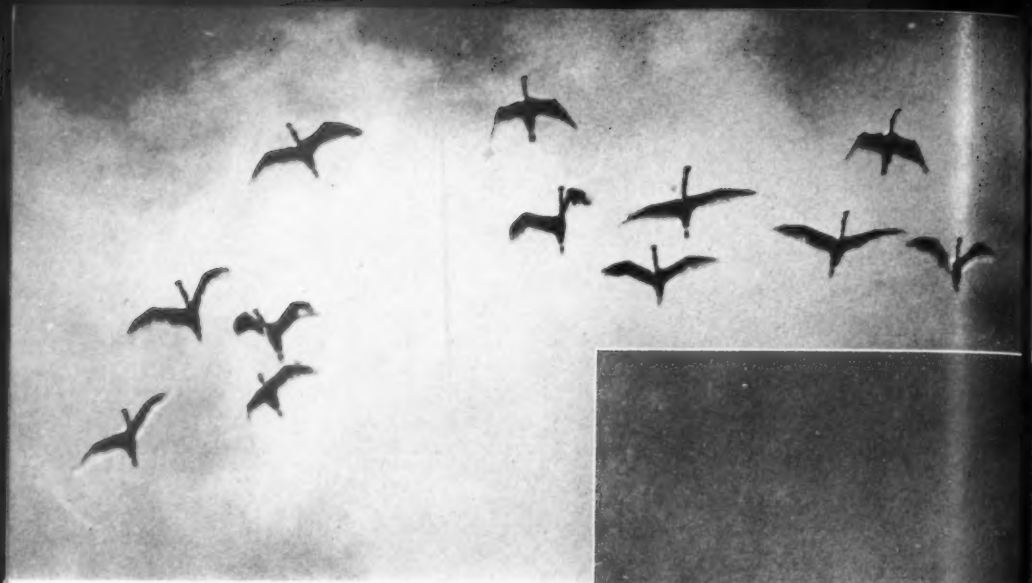
It is particularly fitting that this spot—so closely linked with the great days of Audubon's life, so rich in its heritage of early associations—should now be under the protection of the National Audubon Society. Sandy Key and its environs are the latest area to be guarded by our wardens. The island, and the shallows around it, have been turned into a sanctuary for bird life. This newest refuge is a site not only of historic interest but of present value.

What is Sandy Key like today—a century and a decade after Audubon?

As I rowed the *Spoonbill's* dinghy across a hundred yards of water to the shore, I could see hurricane-blasted remnants of mangrove tangles, their roots and branches dry and dead. The presence of commercial fishermen and their families, at this best anchorage among the keys of the Bay, has deterred the birds' nesting as of old. The spectacular bird flocks of Audubon's time have disappeared. The "rose-colored curlews"—roseate spoonbills—largely through the efforts of our society, have staged a comeback; but they nest among the mangroves of other islands. However, the birdlife of Sandy Key still provides, as it did in Audubon's day, a drama worth traveling far to see.

High above the keys and the expanse of sunset-lighted water, a graceful man-o'-war bird coasted and circled effortlessly on widespread wings. A sooty cloud of cormorants, flying low above the water on laboring wings, their necks thrust out loonwise, passed between the dinghy and the shore. The air, still heavy with the heat of the day, was filled with the wild-sunset clamor of the Caspian and royal terns.

Gaunt stubs of hurricane-blasted trees line the desolate shores of L-shaped Sandy Key.



*Above*—Roseate spoonbills, the “rose-colored curlews” of Audubon’s “Journal.” *To the right*—Sandy Key shallows at low tide, during early morning. Within the protecting right-angle formed by the island, mile after mile of sheltered shallows stretch away to the east and north—a perfect feeding area where birds come and go, unmolested, secure under the watchful eyes of Audubon wardens.

The keel of the boat slid out onto the beach, crunching among the broken shells. I jumped ashore on footing that was smooth, packed and white with a million tiny shell-fragments. A hundred steps carried me beyond the first turn of the shore. A green mound of seaside lavender blotted out the white form of the anchored *Spoonbill*. I was alone on Sandy Key.

The tide was running out and the gray-white beach widened as I walked. Jellyfish, stranded among the masses of wet seaweed, were shining and transparent like lumps of cool, un-solidified glass. Rising and falling, the empty shells of horseshoe crabs moved rhythmically in the slow lapping of little waves. The air was rich with odors of the sea.



At that moment, the deserted island seemed as solitary, as remote from the world of man, as it had appeared in Audubon's day. The only link with the present was a weathered railroad tie lying far above the tide-line. It had been hurled ashore during the great

hurricane of 1935. A goat's-foot vine now ran across one end of the tie and a small grasshopper with brownish legs clung to the gray wood, basking in the rays of the declining sun. Inland, beyond the tie, red-green mats of fleshy salicornia carpeted the



ground and flat-leaved cacti rose in spiny clusters. Above the higher ground—itsself hardly more than a yard above the level of the sea—gumbolimbo trees lifted their twisted branches into the air.

From the dead top of one of these

trees, where a great mass of dry sticks formed its nest, an osprey took wing. It sailed out over the long swells, circled, hovered, dropped with a white splash, lifted heavily and swept back over the island, a glint of silver shining in its talons. Beyond the railroad



Man-o'-war birds coast and circle effortlessly on graceful wings over lonely, deserted Sandy Key. The scene below looks north along the western shore, where a million tiny shell-fragments have been washed up on the beach.



tie, where the bleached skeletons of hurricane-twisted trees lie in piles and windrows, eleven black-crowned night herons flapped into the air from a thicket with a chorus of alarmed "Kraaacks!" A moment later, there came one of those sights of short duration which provides a memory for a lifetime.

Riding up over the gumbo-limbo trees on seven-foot, snow-white wings, an apparition of beauty suddenly rose into view. Tinted by the rays of the sinking sun, my first great white heron burst upon me. For years, I had heard of this largest of the heron family, this rare wader of the shallow seas, this shy bird so restricted in its North American range that it is found normally only in a small area off the tip of Florida. My sight of it lasted but a few seconds. It disappeared as suddenly and as dramatically as it had appeared. Tilting steeply, it lifted into a climbing turn, slanted downward and was gone. In that sudden veering away, before the curtain of foliage hid it, it seemed immense, gigantic.



As I walked on, I met from time to time masses of sea-foam, as light and as white as thistledown, rolling along the sand. Ruddy turnstones alighted and took wing and alighted again. Palm warblers flicked in and out of the higher vegetation. Overhead, sea-birds wheeled, crying continually. And, under my feet, the shell-fragments crunched methodically—the sound, slowing down or speeding up or stopping altogether, telling its story of sights of varying degrees of interest.

The capital "L," which the outline of Sandy Key approximates on navigation charts of Florida Bay, has its thicker base running roughly east and west and its slenderer upright north and south. As I neared the far upper tip, at the northern end of the upright, a familiar sound—the sudden clatter of a rattling call—increased in volume and the blue of a kingfisher shot overhead. Turning back down the inside of the upright, I came upon the most spectacular sight which present-day Sandy Key has to offer.

Spread out before me, within the protecting right-angle formed by the island, mile after mile of sheltered shallows stretched away to the east and the north. And all across these wide sea-pastures herons had alighted to fish on the ebbing tide. Louisiana herons, Ward's herons, the hybrid Wurdemann's and, largest and most beautiful of them all, great white herons, were scattered across nearly ten square miles of feeding grounds. This vast area of stranded seaweed, sandbars and rippled, marly bottom, forms one of the great feeding areas of the Florida keys. Secure under the watchful eye of Audubon wardens, the birds can come and go unmolested.

I dropped down on a low mound of sand and swung my field glasses in a wide arc over the area. At one place, fourteen great white herons

formed a straight line that extended for an eighth of a mile. Rigid on their stilt-legs, they stood motionless, all resting on the submerged ridge of the same sandbar. From time to time, a yellow lance-bill would thrust in a sudden jab into the water. And, now and then, one of the great birds would unfurl its wide wings, flap deliberately two or three times, and, soaring for a surprising distance, drop down at a new fishing site.

In the low rays of the setting sun, the pure white bodies of the great white herons seemed even larger than they were. Amid the darker herons, they loomed up like the white sails of a fleet of racing yachts. They caught the eye from a great distance. I counted more than fifty of these rare and magnificent birds scattered across the shallows. One great white heron is a memorable sight; seeing half a hundred at once is, as an experience, an ornithological superlative.

Not so many years ago, when the National Audubon Society was first beginning its work of protecting diminishing species in Florida Bay, this greatest of all the herons seemed well on its way to extinction. Now, nesting among rooted branches of the mangrove tangles, and feeding on the shallows of Sandy Key and elsewhere, it is better than holding its own.

The pipefish, toadfish, porcupine fish, shrimp, porgy and mullet on which it lives are abundant in the area. Shrimps form the main diet of the fledglings during their days on the shallow platform-nests among the mangroves. The great white heron nests virtually the year around but most of the eggs are laid in December and January. On a neighboring key, I later found one fledgling, well-nourished and sturdy, occupying a nest

Inland view of Sandy Key. ►

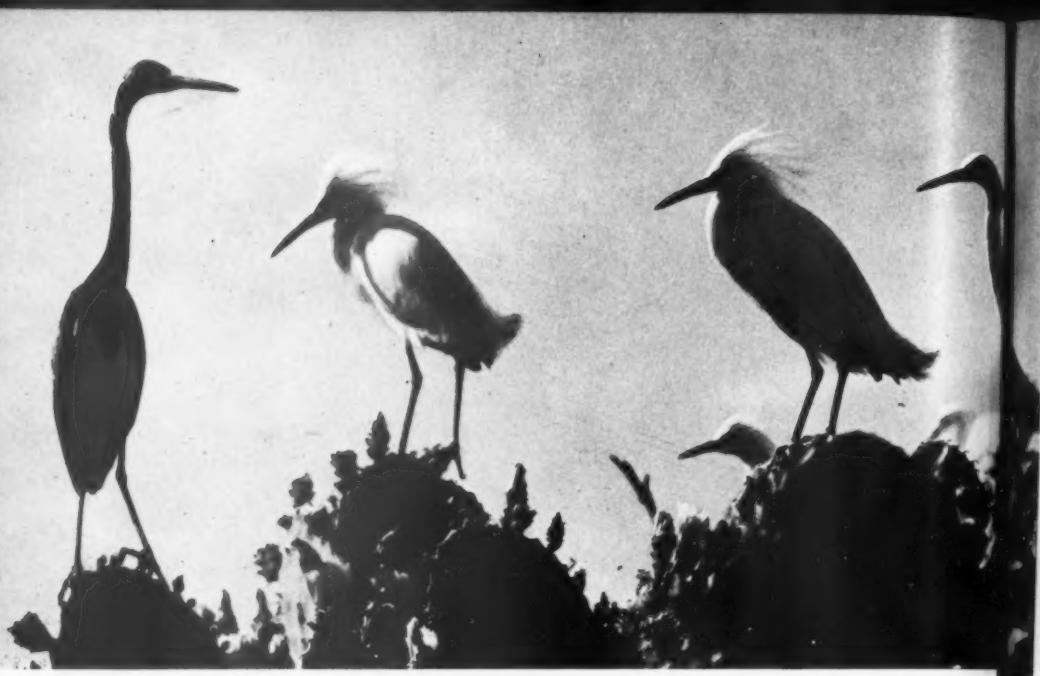


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hardly more than six feet above the water.

The sun was below the horizon and the luminous twilight of the lower latitudes had enveloped the island when I started on down the beach once more. Between the tide-marks along the shore, sandpipers darted in fits and starts, dining at a plentiful table. They kept ahead of me, taking to the air, alighting, running on twinkling legs, tipping and bobbing at every pause. Seemingly far removed from all this activity of island and bay and shallows, the long-tailed, slim-winged man-o'-war bird coasted in wide circles high overhead, still touched by the light of the now-hidden sun.

By the time I reached the beached dinghy, the soaring bird—still cutting circles like a man skating on ice—had descended out of the upper sunlight. As I paused to watch, its slender form stood out for an instant against a luminous disk as it slid across the face

of a rising full-moon. To the west, the horizon drew a straight line across darkening waters.

Already, the sunset clamor of the terns was dying down. Their white forms covered almost every available inch of space on one of the net-racks which itinerant fishermen had built offshore to the south of Sandy Key. Another net-rack was black with cormorants. By the time I had reached the *Spoonbill* and our evening meal was over, darkness had fallen and the white forms of the distant feeding herons had faded from sight.

It was after eleven o'clock that night when Eifler called me on deck to witness one of the strangest, most ethereal sights I have ever seen. The bay, the black mass of Sandy Key, the white form of the anchored *Spoonbill*, all were flooded with moonlight. And above the white, silent boat, silent ghostly forms on wide white wings were climbing upward into a moonlit sky. One by one, they passed noiselessly over

Snowy egrets and Louisiana heron to the left. Below, American egrets. Today, Sandy Key is not important as a nesting area but as a base from which our wardens can patrol the vast watery pastures surrounding it. The presence of commercial fishermen at this best anchorage among the keys of Florida Bay, has deterred the birds' nesting as of old, but our wardens solicit their friendship and cooperation. Herman Armour Nichols of New York has owned the island for many years and recently leased it to the National Audubon Society. It is particularly fitting that this spot—so closely linked with Audubon's life, so rich in its heritage of early associations—should now be under our protection.

the sleeping boat. The great white herons were leaving their rich feeding grounds in the lee of "Audubon's Island." They were winging their way to mangrove roosts on other keys. The tide was up at last; the herons were going home.

That vision of moonlight and silence, with the great white birds—silent, also—winging overhead remained my most indelible impression of Sandy Key. It symbolized the life and beauty our bird-protection program is dedicated to preserve. It emphasized the fact that, a century and a decade after Audubon's day, bird life, rare and irreplaceable, still remains for us to guard.





Red fox pups

*C. Huber Watson*

# CONSIDER THE FOX

By Alan Devoe

IT would be pleasing this month to write about foxes in the manner of those biographical close-ups, or intimate life-stories, in which on other occasions I have tried to present other animals in the pages of this magazine. The red fox, much watched and much studied on my country acres, has a fine personality for such presentation. The hunting-ways of a solitary fox in winter . . . the squalling of vixens in the nights of February or early March . . . the true "pairing" of foxes, a partnership which lasts at least all through spring and summer and autumn . . . the birth (about the time when robins and bluebirds are coming back to New England and prospecting for nesting-sites) of the little foxes which may number from four to nine . . . the playtime antics of them, scuffling, prancing and rough-and-tumbling . . . the learning of the tricks of the chase . . . it would all be a fine portrait to compose, this life-study of *Vulpes fulva*, he of the long pointed nose, the peaked ears, the gleaming eyes and the deep wild cunning.

But this article is to be of another sort. It is to be a consideration of the fox in a much wider sense. The total question is of the gravest importance to every nature-lover, sportsman and conservationist.

In its issue of March 13, the magazine *Life* published a photographic essay on a "circle fox hunt" in Holmes County, Ohio. A circle hunt is carried out by the formation of a huge circle of participants (sometimes just men, but often women and children also) around an area where the fox is

known to be, and then a slow implacable drawing-in of the circle until the panting fox is tightly imprisoned and is beaten to death with a club. In *Life's* photographic series, the final clubbing was done by a child.

*Life's* attitude toward the circle hunt was bitterly condemnatory, full of a wrathful irony and sardonic contempt. The article elicited, it is understood, a uniquely enormous volume of reader-letters, and these ran 50-to-1 on the side of the bedevilled fox and against the bedevilling circle-hunters. Charges were made, by Holmes County officials and others, that *Life* had misrepresented the hunt, and had indeed perpetrated a sensational fakery by coercing or wheedling a small child to pose as the fox's final clubber. *Life* put up a strong rebuttal. It is not necessary to go into the rights and wrongs of that particular aspect of the dispute. It is perfectly clear, from *Life's* photographs, that all the circle-hunters were having, as the phrase goes, a high old time; whoever did the final clubbing, the faces of the eager mob were gloating faces, exultant in a deliciously satisfactory and bloody triumph.

*Life's* story and photographs, and other similar material, were picked up by many news services and syndicates, and thus were disseminated virtually throughout the country. Ever since then, America has been "fox-conscious" as never before in its history. From the original question of the decency of "circle hunting," there have stemmed and flourished furious arguments, in the national and local press, around the stove in the village

store, between fox-hunters and bird-hunters, indeed among all sorts of factions, as to the merits and demerits of "the little wild dog," and as to how we should treat him. As usual, when arguments go on a long while and tempers soar, more and more radical views have been expressed. There have appeared legions of obviously good-hearted nature-lovers who have insisted that no fox should be killed anywhere, ever. There have appeared legions of embattled farmers, citing ever bigger and bigger statistics of their losses through fox depredations, who insist that the only good fox is a dead fox, and that *Vulpes* should be killed whenever, wherever, and however possible. The whole excitement has grown to an angry simmer.

It seems high time, and of serious import, for a little sober consideration to be injected into the hot war of words. Is the fox a menace? Generally or locally? What is his diet, as scientifically established? Is he the cause of dwindling populaces of game birds? How many chickens does he kill? How many pigs? We ought to know these things. Men are not to be dissuaded from hunting foxes, even circle-hunting them, by pious exhortation alone. The thing that may, in the long run of conservational education, give men a better understanding of outdoors and of nature's interlinking ways, is facts.

The red fox is a predator. (So is the "chicken hawk"—meaning any kind of hawk at all—at which some farmers, even now after years of attempted conservational education, still indiscriminately blaze away). Just what, actually, are the fox's depredations?

Before me lie five recent and authoritative reports, the results of long and patient examinations of great

numbers of fox-droppings and the stomach-contents of dissected foxes. In Arthur E. MacGregor's report on the late fall and winter food of foxes in central Massachusetts,\* he finds that in autumn the fox's taking of all foods runs, in descending order, as follows: apples, shrews, deer-mice, grasshoppers, rabbits, porcupines, grass, woodchucks and various insects. There is more to the list, which is a long one. Far down it—so far down that the percentage of occurrence is only 1.8%—is listed poultry. In W. Robert Eadie's monograph on the food of the red fox in southern New Hampshire,† he reports that chicken remains amount to 6% in winter and 2% in summer (an odd statistic, to be explained later), and that, though ruffed grouse were abundant during the period of collection, they were sparingly represented in the fox's diet (2% in summer, 3% in winter). Dr. Eadie cites figures to suggest that the fox does not prey heavily on grouse, whatever game-bird hunters may think to the contrary, nor on pheasants (of which no remains whatever were found during the investigation, though the birds were present in the region at the time). Among mammals in the fox's diet, he finds, as have most scientists, that mice and rabbits are staples, and he cites the high percentage of vegetable matter occurring in fox-diet: blackberries, apples, blueberries, wild sarsaparilla and grass.

As the other three massive monographs before me substantially concur in these statistics, it might seem that the fox-question was firmly and simply settled. We have been furnished with a clear picture of an animal that eats rodent pests, insect pests (even cutworms, most assiduously), does

\*Journal of Wildlife Management, July, 1942.

†Journal of Wildlife Management, January, 1943.





*Adolph Murie*

The red fox does not seem to travel extensively, its range throughout the year probably does not cover an area of more than five to ten miles across.

virtually no harm to poultry or to game birds, and should therefore be regarded as a friend. Why inquire further? Well . . . ecology is a very intricate affair. It is never as simple as it looks. The texture of nature is infinitely complicated. Follow a wrong policy with regard to robins in New Jersey (so to speak), and there ensues a wildlife catastrophe in Minnesota. That is exaggerating, of course; but the laying down of any policy, particularly with regard to predators and especially with regard to foxes, is not to be done without a deal of forethought.

Here, for example, are two points for thinking about:

Whatever the statistics in particular studies in particular places may tend to show, it remains true that every now and then foxes do a truly appalling damage to chickens. In my own countryside, which is mostly given to dairying and poultry-farming, there is such chicken-killing by foxes that not one of my neighbors would be in the least interested in reading somebody else's statistics for some other region. He'd just reach for his gun. (Indeed so eager was one of these farmers to get the fox that had been killing his fowl, that he hid one morning in tall wet grass, waited hours for the fox to appear, and shot it dead. The fox proved to be a small chow dog).

I have had three fox-dens under observation for a long time, and it is indeed true that plentiful fresh poultry is brought to them. As it happens, however, there is far more poultry at the dens in winter than in summer (as occurs also in Eadie's statistics). The explanation is that the winter poultry is carrion. It consists of already-dead birds that the farmer has thrown out on the manure pile or dump-heap, where foxes can readily

get them. Den study, as a means of establishing foxes' habits, can be very misleading.

Now consider also the fact, emphasized by Prof. Aldo Leopold, that foxes enjoy occasionally—possibly in regular cycles—"highs" in which their numbers rise far above normal density of fox-population. At present a "fox high" extends all the way from Iowa to Pennsylvania, and in Wisconsin the fox density on censused areas is about four times normal. Leopold sees no harm at this time in relaxing regulations on fox-hunting, "because you cannot hurt the population during a high;" but he is careful to stress that the "fox high" is probably *not* a cause of the simultaneous shortage of pheasants.

As a final mind-muddler, I give you this paragraph from Dr. Paul L. Erington of Iowa State College, whose monographs are models of caution:

"In many cases, a reduction in numbers of foxes may be to the interests of all concerned (including the probable interests of the foxes as well), but it should not be assumed that reduction is necessarily the sole solution of the problem, or even the best one, or even a solution at all."

It is plain, from long examination of scientists' and wildlife experts' literature on the fox, that the time has not come, if ever it can, when a rigid and single policy can be adopted with regard to our friend *Vulpes fulva*. It is very likely, I think, that a rigid and universal policy is not desirable anyway, in dealing with any extremely complex problem of outdoors. A certain fluidity in these matters allows for a broader wisdom than does unyielding dogma. With this in mind, a conning of the available data on foxes does seem to establish, as broad basis for a policy, the following:

*First:* The red fox is chiefly guided,



C. Huber Watson

Foxes dig burrows into banks or hillsides or have dens in old hollow logs or stumps. The pups stay close to home and are cared for by both parents until able to go hunting on their own.

in its predations, by availability of prey, rather than any predilection for particular kinds of prey. Prey types are taken very nearly in proportion to the ease with which they may be caught and handled.\* Given abundant field-mice and rabbits, the fox may prey on them wholly. At times he may live almost exclusively on beetles and grubs. He may subsist to a great degree on grass, leaves and windfalls. Normally and averagely, on the basis of every careful investigation thus far made, the fox takes only a small percentage of game birds.

*Second:* In those cases where the fox does prey heavily on such birds as quail, it appears that this preda-

tory pressure occurs when the quail have grossly exceeded the carrying capacity of their environment. In short, the *effect* as well as the mere *size* of the red fox's predations amongst game-birds must be considered. Simply because he may, on occasion, kill numbers of them, that does not necessarily mean that he is harming the species. It has been carefully determined (Errington & Hamerstrom, 1936) that in cases of heavy predation upon quail, the quail-population has suffered no deleterious effect. What *has* happened—and this is a matter for a great deal of further careful exploration—is that foxes cull the sick and stupid and ill-adapted individuals among the quail, and thus may very possibly, without

\*Management of the Red Fox in Iowa, by Paul L. Errington, in *American Wildlife*, March-April, 1937.

substantially depleting the quail population, improve immensely the birds' racial stock and vigor.

*Third:* On the well-substantiated theory that the red fox tends to prey on whatever is most handily available, it must be acknowledged that most of the farmer's losses through foxes are avoidable, and the responsibility rests with the farmer. Where fowl, young lambs and piglets are kept properly penned and inaccessible, fox-thefts do not occur. Where chickens are turned loose in far cornfields, bordered by woods, fox raids are naturally to be expected, if the obvious precaution has not been taken. The obvious precaution, as wildlife authorities have repeatedly pointed out, is a well-trained dog or two. With canine protection for otherwise unprotected poultry, small lambs, and so on, the farmer cannot but acknowledge that a fox is a real advantage to him. The tawny-backed little beast with the wary tread and the sharp lean muzzle may averagely eat six field-mice every day. The customary reckoning is that each of those mice would averagely eat two bags of grain a year. The New York State Foxhunters' Association has come out clearly to say: "A den of foxes on a man's [well-managed] farm is worth the weight in gold of every one of the young ones."

*Fourth and Last:* It is abundantly clear that, by and large, the red fox has a valuable place in the economy of outdoors (as does almost every other wild thing, when science brings the full scrutiny of its great lens to bear upon it!). It is to be acknowledged, however, that occasionally local and special conditions (such as the recurrent "fox highs") may warrant a heavy destruction of foxes; but such situations are to be handled only on the advice of experts in wildlife man-

agement, after they have been given ample opportunity for study of the total picture in the case. There are more apt to be too few foxes than too many.

There. The case is in, and a little justice done to Reynard. However, I find I have to say one thing more.

Abominations such as the Holmes County fox-hunt must be stopped. No ifs and buts. Such hunts deserve whole-hearted anathema, and the unceasing opposition of every conservation group, every Humane Society, every sportsmen's association, and every individual hunter of decent instinct in the land. The "circle hunts," according to proud officials of the State of Ohio, have been going on for a century. That is a century too long. Let this kind of fox-hunting be despised in the most vigorous possible terms.

It is not that so many foxes are destroyed. The circle hunts do not catch very many. What matters is that children are being brought up in a tradition of thoughtless cruelty, sadistic glee, and malevolence to wild animals. Their natural simple kindness to all beasts of the field is being perverted into a monstrous kind of hatred and a monstrous kind of "sportsmanship." It is not right; it is not American; it is not decent.

Bernard Shaw once said that what shocked him about the Puritans' pillory was not the harm done the prisoner, but the ghastly evil wrought in the heart of the man who applied the punishment. So with the hunters of Holmes County. They may not respect statistics about the fox. They may not hold with "them scientists who think they know so much." But let them, in a quiet moment, look into their own deep hearts; and let them be shocked and frightened and bitterly ashamed at what they see.

Catbird by  
Allan D. Cruickshank



There is significance  
to everything in nature . . .  
even to the bird  
silently feeding on  
your lawn

## JUST BEYOND MY DOORSTEP

By William Calvert

WHILE I sit waiting for breakfast and looking out the bay window and across the lawn, this Sunday morning teaches more than a Sabbath lesson. The sun is the donor of life and color to our revolving earth, and logically, in such damp, sober weather, while he hides behind a greyish screen of cloud-filter, there should be a lack of just those qualities, life and color. But the sun is a gay deceiver. He bleaches the color from the landscape, saps the life that he has donated, and leaves it to such watery atmosphere to touch up the subtle shadings and con-

tours of the visible world. On my warlawn the high yellow stubs of intruding Dallas grass stand out against the deep green matting of the Bermuda. On the lawn, too, and lingering in the roughly cut border, the birds are out in numbers, disporting themselves and at every instant displaying the vivid color of life. In every motion they project themselves, differentiate themselves, lay their peculiar claim to notice and analysis. Individually, they are each a living being seeking food. Collectively, they make up a community of individuals that speak to us



*Allan D. Cruickshank*

A streamlined flier in the air, the dove becomes on the ground a corpulent, rolipoly ball of feathers supporting a flat back and a round head.

through the universal language of form and movement. Let us take a moving picture, in black and white, of a few:

A heavy-set bird hops heavily, straightens up but not too far, bends his head, pecks something in the grass, throws his head back and swallows in one gulping motion. After a glance around, he flies impatiently to a low perch, gazes about him in a positive though inquiring manner, then descends to renew his interrupted feeding. He is, every ounce of him, burly, solid, masculine.

Near him in the grass a thinner bird, and lighter on his feet, surveys his territory with more practiced ease. He executes a few hops in the manner of a run, then straightens his body almost to the perpendicular to observe his surroundings; no other lawn bird has so upright a carriage, so military a bearing. He cocks his head to right and left and slightly backward; the effect is of one listening intently, but the glittering eyes betray watchful gazing. Swiftly he plunges his bill in the ground and pulls in a worm hurriedly, expertly. The whole procedure is over in an instant. But the next time he has more trouble. He jerks upward, with empty bill; a second time he tries, and a third, but still

with no success. Finally he digs in his claws, braces himself, pulls with all his might first to the right and then to the left, then alternately in rapidly succeeding movements. Up comes his head with a length as of packing thread attached. He throws the worm into the air and in a series of skilful gestures directs it into his gullet and beyond. The process leaves us more admiring of his skill than sorry for the worm.

In the slightly taller grass off to one side from jay and robin, for such our two subjects have been, are a loose group of birds, moving in a rough approximation to unity. Let us watch one of them. He is a full-bodied, squat bird, clinging close to the earth, so that the longer grasses half hide him. He walks, not hops. His two feet likewise move in loose unity, each independently seeking its proper pedestal. He spreads his legs wide, so that he shall not be thrown off balance easily, and all his actions back up this appearance of a careful, provident, bourgeois nature. Sometimes he walks deliberately, sometimes rushes to overtake his food. He prods the earth, swiftly and accurately, plunging his straight yellow bill to its full length into the ground, to the very roots of the grass. His absorption breathes glut-



tony. He pays no attention to anything but his feeding—and to the possible approach of danger. Once in a while, at some disturbance that the other birds ignore, he and his group rise in sudden alarm into the neighboring trees, where they remain until all danger is obviously over. He may well be on his guard, for he is, deservedly or not, one of the more unpopular members of the bird kingdom: the European starling.

Mixed in with the starlings is a bird that might easily be confused with them, for he is of similar build, walks like them, and flies with a similar beating of the wings. His walking is more regular, less spasmodic, and every now and then he raises his head two-thirds toward the perpendicular, to keep a challenging eye on the sky. His mottled body melts more readily into the grassy environment. Though a quieter individual, there is that in his camouflage and his upward glance suggestive of the wild. This bird is used to feeding in fields under the coasting hawk. He is our meadowlark.

But for sheer vitality and vividness, all of these, even the robin and the jay, pale before a newcomer who has landed, with an uptilting of wings and tail, just across from the window. As he stands, neither upright nor crouching, he offers a thin straightish silhouette. He moves in a combination of hopping and running; sometimes in definite hops, oftener in quick short runs, and often in hops in which one foot visibly takes off and lands before the other. In every movement he is preeminently graceful. He eats much like the robin, of the same sort of food, and has the same occasional trouble in capturing it. But he approaches his victim from a distance, not from overhead, throwing his head and body forward and only slightly down, very much in the position of

a fencing foil at guard. Like the robin's, his alert feeding is an expression of his zest for living that demands sustenance. One of his gestures is peculiarly his own. In the interims of feeding, whether to display his dark-and-light design or to express his restless expansiveness, he thrusts his wings sideways, first the primaries and then the secondaries to their lateral limit, and spreads his tail, exposing a grey ground crossed by white. He differs from his associates, however, not merely by this one movement, but by the tenseness of his body and the directness and assurance of every uncompromising action. In all phases of his being, the mockingbird is a creature to stand out in any crowd.

Here on my lawn is our bird world in miniature. Here are species of opposite natures, eating together, without friction if not in harmony, an aggregation of individuals who have learned to let one another alone, indifferent one to another so long as they do not get in one another's way. My descriptions have intentionally avoided color, in order to throw form and activity into stronger relief. Color is a comparatively superficial or secondary characteristic of the bird, who may in moulting season shed his coloration as easily and naturally as we shed our winter coats. But form and movement are the intimate essence of the bird himself. Alone, as in our museum showcases, either is dead. But together, in harmony or collision, they constitute the structure of the living personality.

The bird is the most interesting anatomically of God's creatures because he is fashioned to live in the widest variety of environments. Nearly all birds are at home on earth and in the air, and many add to their repertory a third element, water, its deeps and shallows. The bird perches, walks,

*Allan D. Cruickshank*



The jay is as arresting in a black-and-white arrangement as he is in his beautifully shaded native tones of blue. His vivid actions demand our attention to his burly, solid and masculine personality.

flies, and often wades, swims, and dives, and for each of these functions he must develop a separate set of capabilities. We know him best as a flying animal, but for the majority of birds, flying is only a recourse, a temporary means, or an immediate escape. Their lives, like ours, are spent mainly on the earth, or on earth-attached objects like trees and houses. But their wings and tail they must carry with them, and accommodate to their earth-bound actions. Wings and tail, in certain species, may get in the way, or the owner may have become so completely a flying creature that he is ill at ease on his feet. A bird on the wing and on his feet may be two startlingly different persons.

Take the case of that dazzling flier the dove. Watch him for an instant. He walks with waddling steps, his head moving backward and forward in jerky quick movements that answer to his steps. His body is an unmoving solid between an upper plane and an under roundness, an axle for the absurdly oscillating feet and head; he

seems to balance on his rounded belly. Head down, he pecks like a chicken, eating constantly at a plentiful supply of food, like a chicken at mealtime. He raises his head occasionally to stretch and look around, taking a minute off before he returns to his eating. Though in the air he may give the impression of streamlined desperation, on the ground he is another barnyard fowl.

For most birds wings and tail are not at all in the way; rather they are added instruments for the owner's expression of his inner sense of being. Our average bird makes proud, or attentive, or graceful use of these appendages, and adjusts himself happily to necessities of tree or lawn. Two excellent examples are those near relatives of the mockingbird, the brown thrasher and the catbird.

Watch the thrasher as he alights with a sweeping outspread of tail and wings. He stands with upright trunk like a robin, but his tail is thrust back horizontally, making an angle with his body, and is usually spread fan-

wise; his head, back farther than would seem comfortable, strains his neck. His tail now pushes the earth, now is tilted upwards to balance his head and neck. He is most graceful in this horizontal position. He hops, either rapidly or with a slow undulation, or slowly with body horizontal. He satisfies himself now and then with a worm. But his attention is not absorbed in his eating. His constant attention to his tail indicates the dandy, always conscious of the excellence of his dress.

Contrast with him his cousin the catbird. The latter moves with a gliding hop, confusable at a glance with a walk, smooth, quiet, catlike. In a thicket he might be said to slink, but in the open he is merely unobtrusive; he simply does not care about being looked at. He has the thrasher's habit, when he stands, of throwing his head at once upwards and back against his neck. In his case, the dark crown emphasizes the horizontality of his brow. But the effect must be acci-

dental, for he has no instinct for display. Impeccably dressed in evening clothes, he carries the self-effacement of formal dress in his posture. He is as graceful, as quiet, and as retiring as a fox. And he holds himself in as lonely reserve.

Catbird and mockingbird and thrasher, mocking thrushes that they are, live each in a world of his own. Each is an individualist, who tolerates intrusion grudgingly, and seldom the intrusion of his own kind. Other species, however, are more social in their instincts. At the back of the house, for instance, where the tall grasses mark the limits of my civilized yard, and scattered trees offer sanctuaries from sun and hawks, moves an intruder from the wild, never hereabouts so tamed that he trusts humanity. As a matter of fact, there are two of them, the female advancing steadily, much like a chicken in a yard, and the male behind her, crouching as he feeds spasmodically, then lifting his head to have a look around. As he

This familiar denizen of our lawns is, like ourselves, a traveler between life and death. He earns his living with sweat and skill, and bows to the laws of gravity and motion, but in every movement as well as in every modulation of voice, he continues to be Mr. Robin. The cock of his head while he looks for food is as peculiar to him as the warm redness of his breast.



Luther Chovan

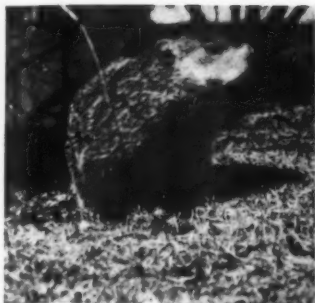
runs from shadow to shadow, or stands almost perpendicular, his body pointed tautly upwards, he exhibits the caution of the wild, hunted creature, the sense of constant danger and an answering alertness. In crossing the field, he crawls, walks, runs, and occasionally flies, but never is he off his guard. He stands erect to sing his "Po' Bob White," or his assembling call, and he is echoed now and then from the grass thicket, a reassurance that he is far from alone. The wide-flung little flock thus keep in constant touch with one another. Feeding individually, they nevertheless cohere as a troop, and when the afternoon shadows lengthen, the calls come from closer and closer together. On this mutual advice and warning depends much of the bobwhite's chance for survival.

Individual or group, thrasher or bobwhite, however differentiated, there is about the birds that we have been observing a regularity and unity that preaches the reign of law. Laws physical and biological all these creatures obey; they are as subject to the pull of gravitation as unfeeling sticks and stones. They must come to eat where their food may be found, and as they eat their bodies swing on the pivot of their feet, wings pressed out of the way against their sides, and tail balancing head. But they have a freedom, ungranted to sticks and stones, to accomplish their purpose in an unlimited number of ways. Robin and bobwhite stand upright, the dove horizontal. Starling and lark walk, the mockingbird runs and hops. The robin approaches his food from above, the mockingbird aslant. The head may be held high or low, as witness the bobwhite and the starling. Slight idiosyncrasies indicate a species so exactly that the practiced observer can recognize at a glimpse. The lark pauses and glances upward. The bobwhite

calls. The robin cocks his head. The mockingbird displays his wings, the thrasher his tail, the catbird includes both in a neat design. The lark sings from his stance on the ground, his sharp bill pointed sunwards, but his brother-in-appearance, the starling, sings only from post or tree or house-gable.

Each being seeks his own purposes, each in his own way. Within the law, he chooses. Here on the lawn the emphasis is on food. But we are covering only a portion of the bird's existence, ignoring those times when he rises into the air or a tree, when he hides in the brush, when he wades the shallows or dives into a pond. How much of his life everywhere is spent in the mere quest for food! Yet in the act of eating is involved more than appetite. Mere physical needs, even mere physical make-up, do not explain the spectacle. The laws of mechanics are the servants of passion and whim, of the complex of inner vital forces that compose the oneness of a living being. Even eating becomes a form of self-expression. And we are led by our original exercise in identification into a discovery of personalities.

Indeed, by whatever devious paths, we are always brought back, in the ornithological realm, to the all-pervadingness of personality. Living nature divides itself into the qualities, the differentials, the impetuses that go to make individuals and races. In birds, however removed from our human genus, we discover beings sympathetic to ourselves in subtler ways than steel tape can measure. The physical offers the obstacle, the means, or the environment; but the driving power is in a personality that, watched with understanding eyes, strokes answering chords in the human observer.



...RASCAL...

## A Foundling Chuck

By Charlotte B. Dowd

EVERYTHING comes to him who waits, and now that I have played nurse-maid to a baby woodchuck, I must tell you that this is an experience worth waiting for.

It was in May, last year, that a neighbor's dog dug out a nest of woodchucks and one of the surviving babies was brought to me. About six inches in length, with a short tail and long heavy claws the plump, sleek little fellow nestled in my hand looking for all the world like a breathing ball covered with smooth grayish brown hair.

A wooden box—20" x 13" x 9"—became his new home. Into this went garden dirt to a depth of five inches, a handful of dry grass, some wool jersey cut from an old bathing suit, and a carefully wrapped pint-bottle of warm water for heat. Baby chuck snuggled contentedly into this improvised nest and went to sleep, while I prepared his first meal of two parts milk

to one part warm water. Two teaspoonsful, administered through a medicine dropper, were fed to him every three hours during the day. The infant adapted himself readily to this new method of nursing, grasping the glass tube in his tiny black hands and sucking so hard on the tip that it was hardly necessary for me to press on the rubber bulb. After three days, I left off diluting the milk and, within a week, the medicine dropper was discarded for a one-ounce bottle capped with a rubber nipple.

Not many babies begin going to school as early in life as did my woodchuck, but since I am a school teacher, off we went each day to the Third Grade room where my pupils eagerly shared with me the duties of foster parenthood. His traveling compartment was at first an open basket covered with a woolen cloth and, later, a heavy cardboard carton with holes

cut for air and the top tied down securely.

At school, he lived in a nest similar to the one he had at home. He slept most of the day at first but would always wake up when the rubber nipple touched his nose. His milk was warmed on an electric plate and was fed to him regularly at morning recess, noon and directly after school.

The children called him "Rascal," and wrote his first story entitled "Rascal Finds a New Home." They drew his picture for their Nature Notebooks, took turns holding the nursing bottle, weighed and measured him each week and kept records of his growth and habits.

It was during his second week at school that Rascal first managed to climb out of his box and tumble on the floor. He crept shyly around near the radiators, stopping often to look and listen. After a half hour of such exploration, we would help him back into his box where he curled up for a nap until dinner time.

He soon learned to climb back into the box unassisted, then tumbling out and climbing back again became a game. About this time, he began to sit up straight to watch and listen, and to eat.

His favorite way of playing was to scamper and to bite. If someone tickled his stomach, he would roll over and bite and then scamper under some piece of furniture, only to return in a moment for more play. He seldom crossed to the opposite side of the room when the children were there for so many restless feet were a bit awesome. But when he and I were alone together, he lost all signs of timidity, racing from one end of the room to the other, and getting under my feet or trying to climb up my legs to remind me that it was suppertime and playtime.

You might think that Rascal's presence would cause disorder in the classroom, but the children enjoyed his presence so much that they were willing to pay the price of good behavior to keep him as a companion. Occasionally, during study period, one of the boys in the outer row would yield to temptation and hold his rubber-tipped pencil down at his side for the chuck to tug at and chew. Rascal had a taste for rubber, for wasn't that what his dinner came out of every day? Rascal did interrupt a lesson once or twice as when one day during Arithmetic time, there was a whistle. "That was Rascal," explained one of the children. "Look, he's swinging on the curtain cord!" That was the first and only whistle with which Rascal ever favored us. Another time, when a reading group was gathered at the front of the room, Rascal climbed up into the one vacant red chair and sat looking us over as if to say: "Whatever is it you are doing? Let me join in this game."



Rascal grew fast on his diet of milk. His hair became long and coarse and his body so round and fat that he resembled a miniature barrel on casters. One day we discovered that the middle claw on each of his front feet turned up while the others all turned down. I am quite sure that this was not the case when he was very small, otherwise we would have noticed it sooner. His head was strong, as he demonstrated one day by lifting up an eight-pound weight of books that held down the screen which we used to shut him into his box. He must have been nearly five weeks old before he ate his first leaf of clover, and then he found it a rather difficult task.

He began to develop a keen interest in books, especially the covers. He



enjoyed using his four front teeth, and gnawing books became an irresistible pleasure. He enjoyed using his legs, too, and began to roam beyond the confines of our classroom. Several times I found him waddling down the corridor, headed for the teachers' room where a studio couch afforded a wonderful hiding place. There was only one more week of school but I decided that Rascal had outgrown the Third Grade and, in spite of the protests of the children, I left him at home during those final days.

This change in his life was not at all to his taste. He spent part of the time on the screened porch, and part of it in a chicken crate lined with wire netting. He despised the crate from the very bottom of his little woodchuck heart and flew into a tantrum, upsetting his box of hay, chewing on the wire and scolding in excited squeals and grunts. He believed in all the freedoms and didn't care who knew it! My family intimated that he was something of a problem child, and they breathed a sigh of relief when my summer vacation began and I could be home to cope with the situation.

Rascal wanted to live in the house with us, I think. He learned the trick of climbing the back of the porch rocker and making a flying leap to the open window of the living room. Then he would make his way to the kitchen, where he found entertainment by gnawing on any rubber he could find, by cleaning up the cat's breakfast or pushing the cover off the bread pail. He had a penchant for exploring dark corners and behind the piano in the parlor became a favorite hideout. He liked going up and down stairs, too. He would race up as fast as he could, spanking the stairs and making all the noise possible. After a few moments of rest at the top, he would come thumping down in a leisurely fashion.

His energy seemed almost limitless and there was no rest for the weary when he was about.

I hesitated about allowing him the freedom of the dooryard; he might cause havoc in the vegetable garden or be molested by the neighbor's dogs. Since the only alternative was to take him off to wilder country, I tried the dooryard first. I set him on the porch step and, with some misgivings, watched while he explored the region about and under the porch. In a very few minutes he emerged from the shadows with sand sticking to his black-tipped nose. Evidently he had chosen a site for his home, for back under the porch he went and the digging continued by periods for several days. That first morning, I went out frequently to assure myself of his safety and good behavior, but each time he was on the lawn, helping himself to clover, or under the porch busy at home construction.

The first few nights I brought him inside to sleep, but one morning when his ambition had exceeded mine and I found him gnawing a sizable chunk out of the screen-door frame, I decided that such an early riser should be permitted the privilege of sleeping in his own house.

Intent on his new duties, he now seldom had time for play. One day

**The author, Charlotte Dowd of Madison, Connecticut, in her role of nurse-maid to a foundling woodchuck**



while trying to awaken his old play spirit, I pulled up little tufts of grass and dropped them on his solemn head, as he sat gazing off into space. He sat quietly until I paused a moment. Then, quick as a flash, he gathered up all the grass I had dropped, stuffed it into his mouth and disappeared under the porch. Perhaps he had heard of that resourceful fellow who collected all the lemons thrown at him and made lemonade.

But Rascal didn't forget that our house was the source of a welcome food supply. Two or three times a day, he would come to the doorstep for his customary handouts of bread or crackers. He would sit up on his hind legs, so straight that he sometimes fell over backwards, and hold the bread in his "hands," frequently devouring three slices at one sitting. Probably because he was so well fed he never molested the vegetable patch and only once did he nibble off a row of plants in my sister's flower garden, through which he crossed to reach the clover field. He didn't care for raisins or anything sweet. If very hungry, he would eat a tomato, sitting upright as usual, and letting the juice run down over his fat stomach. Neatness was not one of his attributes, neither was patience. If our elderly neighbor, who brought crackers over nearly every day, did not feed them to him immediately, Rascal would start climbing up the man's leg in his eagerness for the treat. Affection, too, seemed to be lacking, but he enjoyed company and would follow us around the yard nipping at our ankles. If he was in his burrow when we went into the yard, a few persistent whistles would bring him waddling forth. His fear of dogs was instinctive; the sight of one was enough to make him run for cover. Cats did not frighten him; perhaps because he was brought up with one.

As he grew older, he did more extensive exploration around the yard and adjoining fields, but always returned to his burrow under the porch. There were two vacant woodchuck holes on the place and these he tried out, but in the end decided, evidently, that there was no place like a home which you have built yourself.

At the end of the summer Rascal was very fat and increasingly inactive. As the weather grew cooler, it would be ten o'clock or later before he would appear at the doorstep to beg for a crust. After eating, he would push open the screen door and waddle over to a spot by the corner of the porch where he could sun himself for awhile before going back to bed for the day.

October 9 was the last day we saw him, and then only for a few minutes. After much thumping and whistling on my part, he pushed his nose out from under the porch. He seemed drowsy and strange and took only a few bites of the bread which I offered. Shivering at the cold wind and blinking at the sun, he disappeared under the porch leaving me with the impression that, in woodchuck parlance, he was thinking: "This is no weather for me. I'll be back after the rest of that crust next spring."

And he did come back—on March 17, St. Patrick's Day! He responded to my whistles, followed me about for awhile, and posed quietly while I snapped his photograph. But Rascal was through with being pampered, I think, for we never saw him after that day. We hope that he wandered off to the fields where other woodchucks are living normal woodchuck lives. If this was the case he is probably a happier chuck. Perhaps, someday, fortune will send another baby woodchuck my way, who will fill for a time the empty place which Rascal's going has left in my heart.



# "Sister Swallow"

## Beloved Bird of Europe



By Henry Beston

EAST from Gibraltar and the flecked clouds which stand so often above the narrows and the Rock, east from the straits to those bluer and warmer seas where the Greek Isles rise in their hill and mountain shapes of darker blue, the long coasts of Southern Europe stare at noonday into a directness of water and the sun. For the most part mountainous and bare, yet not without its levels and solitudes of marsh, the littoral rises before the sailor approaching from the lower shores of Africa, villages of white houses and pink close-pressed to the shelter of the hills. It can be cheerlessly cold in winter as well as sunlit and warm, and I once saw the rare sight of Marseilles and its shipping veiled in a blizzard of small flakes of snow, and the palms of its gardens tossing forlornly in an almost New England gale. . . . But this region is not, however, in any sense a climate of extremes, and man has long sought out this earth, inventing and building here the great civilization of which we are all the heirs. Whatever present history may come to write, it is sacred soil, the land of Dionysius and Athena, the immemorial earth of the olive and the vine.

From classical times, and Heaven knows how long before, this coast has been the particular province of one loved and familiar bird. No other species of the region has so captured the imagination of the Mediterranean

peoples, and become an equal part of their folk lore and literature. Read the Greek myths, and the vivid and aerial presence is there with its ancient and musical names; walk through Rome at evening to the Baths of Caracalla, and you will see the same creature coming to rest in the ruined masonry darkening against the twilight sky. The bird is the European swallow, "Sister Swallow" of the Greek anthology, and *Hirundo rustica rustica* of the ornithologists.

In general appearance, the bird is almost a European counterpart of our barn swallow *H. erythrogaster*, but it is not the same thing and must be listed as a separate identity. From the British bird-manual nearest my hand, I copy this description: "Glossy blue-black above, forehead and chin chestnut, upper breast black, under parts tinged with reddish or cinnamon. Tail deeply forked; outer feathers long and narrow. When tail is expanded, it shows white spots on the tips of the feathers. Nest built of clay, opened at the top, and lined with feathers. Eggs white with dark brown spots." So speaks the manual under "swallow," listing no other bird.

Here in the American northeast (I write from coastal Maine) we have four swallows as familiars, the cliff swallow, the barn swallow, the bank swallow and the tree swallow, the last an individuality particularly American. Europeans have no such list of



species. There is no counterpart overseas of either the cliff swallow or the tree. What Europe has are those other *Hirundinae* which the English vernacular calls "martins," the European types being somewhat smaller birds than the purple or house martin so familiar here about the farms. There are two universally distributed species, the house martin, *Martula urbana urbana*, and the sand martin, *Riparia riparia riparia*. With this European "sand martin," we are home again, for this "martin" and our bank swallow are the same bird. There is also in the picture the red-rumped swallow, *Hirundo daurica rufula*, but this Egyptian and North African species, though known in southern Europe, is there only as a casual adventurer.

So much for other species. Were there a hundred, the word "swallow," *l'hirondelle, tout court*, would mean but one presence of the air.

I speak of *H. rustica* as very much the bird of southern Europe, but the species is to be seen anywhere on the European peninsula. (Indeed, it is Asiatic as well, though in wilder Asia the species is by no means as universal as it is on the peninsula, and tends to keep to certain geographical areas and ranges.) In Europe it is certainly the most familiar migrant. It is the friend and ally who returns in the true and lyrical European spring, the bird whom one sees on English mill-ponds darting down to skim the brown water; it is the welcome guest to whom the children of Denmark sing one of their oldest songs.

What life the swallows give to the air above the beautifully-tended Danish fields, and how they by-pass, by a seeming inch, the church towers of

the baroque silhouettes! They have a shorter season north of the Baltic, but how welcome is their return to the red and white farms of Scandinavia! North they go, north and east to the last primitive Lapland clearings and the melancholy arctic woods of birch and fir. The plains of Russia know them well, and the peasantry of an older day used to tell a little pious story about the wickedness of the sparrow and the goodness of the swallow. It is the blessed, the holy, and the poignant spring; the swallow is back, and everywhere the children hail the birds with a song, and old legends are again remembered by the fire.

*H. rustica* accomplishes a most interesting migration. In the later summer the birds collect from all over Europe, and gradually move south across the land mass, ultimately to disappear into space above the Mediterranean and Africa. To shorten the passage across water, European birds migrating south tend to follow the European peninsulas, numbers moving through Spain, the Balkan States and down the boot of Italy. The Italian migration is probably the largest. Once across the Mediterranean, the swallows vanish over Africa even as ours do into Central and South America, swallows from England going as far as the agricultural open lands of South Africa. A certain number (probably migrants from eastern Europe and south Russia) are now believed to take an Asiatic course, going as far as India and the Malay States. It is, therefore, a valid ornithological millionth chance that a bird seen by an American soldier on the eastern approaches of southern Europe may possibly be seen again by another American soldier at the gates of Burma.

It is in the old and Roman south, however, that the swallow of Europe

comes into its very own. Warmth means insect-life, and the south has a long and sun-drenched summer. The immemorial presence of man with his barns and fields is part of the pattern, for *H. rustica*, like our own barn swallow, is a presence of nature at peace with our human world, and a living part of its works and days.

In today's Athens the swallows of Attica pass in wild flights below the walls of the Acropolis, coming from the shadow below the cliff into the open sun about the roofless Parthenon; the forerunners of these same birds may have heard the chanting of the Panathenaic procession a long twenty-five hundred years ago. By sacred Delphi, Greek children sing to the first swallow of the spring:

*"She is here*

*The swallow who brings the beautiful year,*

*Brothers and Sisters, open the door.  
We are young again; we are old no more."*

I have two treasured memories of *H. rustica* in its own southern world. In Granada, on the top of the Alhambra hill, there is a tiny village of one street built almost in the palace, and this village overhangs the wooded park through which one walks to the town below. A kind of terrace, intense with Spanish sunlight, overhangs the trees, and when it is very still, a sound of little brooks comes delicately into the air. When I lived on the hill, this terrace all day long was a storm and a whirlwind of swallows rushing across space and the blessed peace of the sun. Older people on the Alhambra hill used to tell me that in earlier days people used to fish for swallows there, using poles and insect-baited hooks, but that this unpleasant business had long ago died away. I believe that the results of this

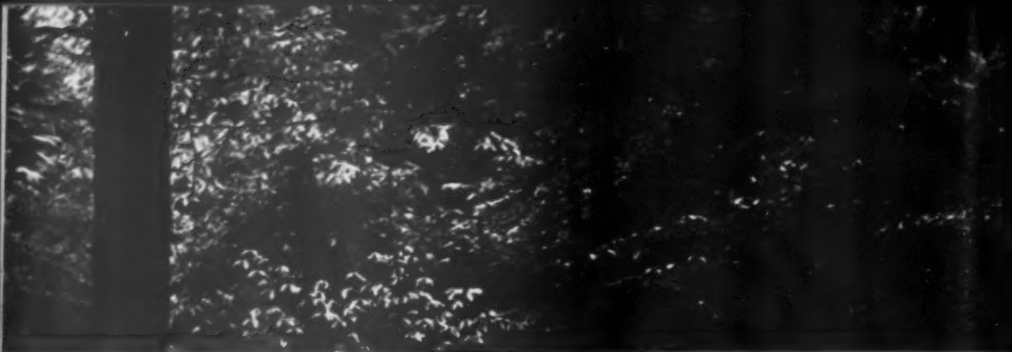


extraordinary fly-casting found their way into a sort of Alhambra pie.

The other picture which comes to my mind are the swallows of Constantinople as one sees them at sundown from the heights of Pera. Across the Golden Horn lies Byzantium with its domes and minarets, its palaces and barracks, docks and wharves, and below lies the still water with its anchored tramps standing a little inshore, and motor boats coming and going to the ships. At sundown all this scene of bridges, minarets, ships and golden water becomes a Byzantine heaven of swallows, the birds flying socially in great clouds and wild convolutions with that particular ecstasy of their kind. The swallows pass, and even a kind of swallow sound, till the night slowly gathers the wheeling armies into the harbor smoke and dusk, and the pinpoint lights of scarcely visible ships begin to star the dark below.

Our soldiers in the European field have been writing home to ask about the birds they see. How touching such a gesture is, this gesture of the human spirit in the midst of a mechanized and hardly-human war! There is one species of which our men will ask no questions. It is the swallow, the friend and ally. Seeing the bird speeding above its other earth, how many a farm boy will remember the dark wings which rushed past him and close above his head when on summer mornings he opened wider the halves of the barn door. Swallow, sister swallow, you who share that known and human world of Nature which is our refuge and tabernacle within the enclosing vastness of the cosmic energies, come early to our field and may there be peace on your wings.





## The WILDLIFE COMMUNITY

Part II of an article which explains how wildlife communities  
are organized and how they change.

*By Richard H. Pough*

*Photograph by Harlow W.*





*This is Part II, and conclusion, of an article which has shown us, so far, how the welfare of each wild plant or animal is dependent on the continual presence of all the other species with which it is normally associated in a wildlife community.*

THE inability to read the story which a landscape can reveal about the wildlife community is still widespread. Even biologists and sincere conservationists fail often to comprehend the fact that a wildlife community is in effect a super-organism composed of living plants and animals each of which functions as an integral part of a living whole.

This was brought home to me recently when visiting a friend who teaches biology in a rural high school. He explained that he was often baffled by his lack of what he called "practical conservation" knowledge. He had studied chemistry, physics and biology. He knew a lot about the physiology of plants and animals. He could dissect a fish, frog or bird and tell what function each of its organs performed in the living animal. But he could not work out the answers to the conservation questions that people in the neighborhood asked him.

Sam Jones, for instance, wants to know why the wood ducks no longer nest on the pond near his home. They used to come back every spring but last summer all their young disappeared and this year they didn't come back at all. And Brown, a farmer,

Man often feels humble and insignificant when confronted by the complexity and magnitude of the earth's wildlife communities, yet no other animal possesses a comparable power to influence all other forms of life. It is man's duty to take care that his actions do not result in dreadful repercussions throughout all nature which in the end must inevitably affect him adversely.

wants to know why there are so few bass in the fish pond he built. He stocks it every year, but he catches more fish, he says, and big ones too, up on Long Pond, which is never stocked and where no one even bothers to kill the kingfishers and herons.

It took a good deal of discussion to get to the bottom of these problems, but when I learned that Sam Jones' son had trapped skunks so that he could buy a bicycle, I had the clue to the first question.

"I can't see the connection between bicycles, skunks and wood ducks!" exclaimed my friend.

But there may be a connection. . . . It is possible that young Jones has so cleaned out the skunks around his father's farm that there has been a great increase in snapping turtles in the pond. Skunks are so fond of snapping turtles' eggs that very few survive to hatch, if skunks are present. They, apparently, keep the snapping turtle population under control in this part of the world, and the boy had probably just about exterminated the skunks. Therefore, the snappers increased and undoubtedly got all the young ducks last summer. The old bird had enough sense not to try raising a brood again on that pond.

Young Jones, in his efforts to earn enough money for his new bicycle had impaired the health of the local wildlife community by taking so many skunks that none were left to carry out their normal function. What is more, as a result of having taken fifty skins, when thirty would have been the safe annual crop, young Jones will not be able to take any for some years. Thus the wastefulness of over-exploitation becomes apparent. Thirty skins a year over a five-year period is 150. By moderate trapping, the boy could have made, in a five-year period, three times what he made by taking his



*Allan D. Cruickshank*

skins all in one year. This is, however, only the smaller loss. The ducks are gone and many other organisms have been affected, because of the absence of the insect-eating skunk as a functioning member of the biome. When a new balance is established, following the removal of a species, some organisms will be more abundant than formerly; others less abundant. The composition of the community will no longer be the same as before, and the new community is seldom as satisfactory to man as was the undisturbed one with all its original native species.

#### THE LIFE PROCESSES OF A BIOME

To solve the second farmer's bass problem, we shall have to delve into what we might term the physiology of our biome organism. What does it feed on? What is it made of? How does it live?

Sunlight is the biome's food—pure energy in radiant form which on a sunny day is pouring in out of the sky at a rate of about 7000 horsepower per acre. Green plants serve

the biome as a mouth. As only certain wave lengths of sunlight can be used for photosynthesis, apparently little more than two per cent of this energy can ever enter directly into the life of the biome. The rest provides heat to warm the air, keeping it in circulation, and energy to pump the tons of water which must be pumped up from the soil through the plants of the biome, and on into the earth's water cycle.

Sun energy enables plants to take carbon dioxide, water and nitrates and build organic compounds out of them. The sun energy which goes into the building of these compounds is stored in them. By this method sun energy is "canned," as it were, by plants for the use of the whole biome. And until the energy is needed by some animal, these organic molecules or "cans of sun energy" are the building blocks out of which the individual plants and animals—and, therefore, the biome—is constructed.

Sun energy and the raw materials for body building circulate through

the biome by the simple arrangement of one organism feeding upon another. In general, as a biome matures, it grows greater in volume and a given area of land supports at any one time a greater and greater quantity of living cellulose, carbohydrate and pro-

A community's plant base supports many animals even after the plant material dies and falls to the ground. Earthworms are important key herbivores that support many carnivores like this garter snake (shown in photo on opposite page) and the familiar robin.

The rodent family converts vegetation to meat for the support of a wide variety of carnivorous mammals, reptiles and birds like this marsh hawk shown in photograph below.

*Lewis Wayne Walker*

tein. It also grows more complex. It needs herbivorous animals—leaf-eaters, bud-eaters, fruit-eaters, bark-eaters and wood-eaters—to link all the various plant materials to its animal members. It needs eaters of plant-eaters—carnivores—to eat these herbivores. As a community matures, there are usually more and more eaters, of eaters, of eaters in long chains. As a result the organic materials which serve as body-building blocks are used over and over again and kept alive in organism after organism. This process which enables the life-giving sun energy to flow through the biome is frequently referred to as predation. In each individual contact, the preda-





*Allan D. Cruickshank*

tor receives the means of life from the prey species, each predator in turn becoming prey for animals occupying a position in the food chain beyond it.

Each organism opens, by means of oxidation, some of the "cans of sun energy" which it receives, in order to utilize the stored sun energy for many purposes including motive power and, if warm-blooded, body heat. Gradually all the "cans" are opened and all the sun energy used. As this happens all the carbon, hydrogen, oxygen and nitrogen borrowed from the air, soil and water are returned ready to be used over again, while the released sun energy is dissipated into the air as heat after having been used by the individual members of the biome.

Only the high potential of the original radiant sun energy is lost and, so far as we know, gone forever.

#### **THERE ARE LIMITS TO ALL THINGS**

The discussion above helps us understand why the young bass, stocked in farmer Brown's pond, could not grow properly. Bass are carnivores and need herbivores to link them to the minute green algae which make all sunlit water a sort of aquatic pasture. Nor was it hard to predict just how many fish could safely be taken from the pond each year, as a great deal is now known about the efficiency of various food cycles within some of the common biomes.

Aquatic pastures, like those on

The beaver (some of whose work we see in the photograph to the left) stands next to man in its ability to alter the whole character of an area and its wildlife community. Like most herbivorous mammals of the forest from deer to porcupines, its chief food is barks, twigs and buds.

Without kingfishers (young birds shown at right), herons, water snakes and a host of other fish-eaters to thin fish populations by taking fish of all sizes, growth stagnation will often prevent the development of large individuals of value to man.



*C. Huber Watson*

land, produce fairly uniform and predictable amounts of plant material annually. This organic material can then be used in two rather different ways. If used by young fish in their period of rapid growth, a large fraction of it is simply converted into another form—meat. On the other hand, if eaten by mature fish very little is stored.

Calves in a pasture represent a similar case. They will, as any farmer knows, continually gain weight which represents grass converted into meat. On the other hand, mature steers in the same pasture can consume just as much grass, yet gain little or no weight—a very likely reason for the prevalence of veal in the congested

countries of Europe where all agriculture must be on a basis of maximum efficiency. Mature beef is more or less of a luxury which we can still afford because of our vast areas of grazing land. For similar reasons European fish culture is based on carp, a herbivorous fish one step closer to the food base than the carnivorous bass—America's favorite warm water fish. Although fish are more efficient converters than warm-blooded animals who must use up so much of the food they eat just to keep warm, each conversion in a food chain always results in a considerable shrinkage of the food base. Thus there are of necessity fewer individuals in each group as the food chain lengthens.



This brings us to the concept of "carrying capacity." In a wildlife community any given food base, plant or animal, can support only a definite, limited number of mature individuals or make possible the raising of a definite number of young ones. Actually both things must be done simultaneously. Some adults must survive from year to year as breeding stock, but as the food base fixes a maximum limit to the total population of any organism, the more stable the adult population and the more nearly it approaches the carrying capacity of the area, the smaller becomes the number of young that can hope to survive to adulthood.

#### IT IS THE SPECIES THAT COUNTS

This concept of limited carrying capacity is very important. However, the above must not lead us to think of wildlife populations as static. They are anything but static. Every population is continually being fed with new individuals through reproduction and losing an equal number through predation. The normal average population is, however, quite stable in the absence of human interference. Predators continually crop the surplus over the carrying capacity, yet are prevented by automatic controls from reducing a population very far below normal.

In the case of a prolific rapid-growing organism like a warm-water fish, the faster the mature individuals (incapable of much further growth) are removed, the more food will be available to feed young fish and enable them to grow. So long as a few breeding pair of bass are left, ample young will be produced to absorb the food supply and thus realize the full potential fish-growing capacity of the pond. Actually, in nature, a continual and heavy thinning of growing young

warm-water fish is necessary if overpopulation and resultant growth stagnation are to be avoided.

It is interesting to note that if you study wild populations of any sort, you find a turnover so high and so rapid that most organisms are used for food by the succeeding animals in the food chain, while still growing or shortly after maturity is reached. Thus nature achieves, in the functioning of the biome, an efficiency of conversion from link to link which is comparable to that achieved by the stock raiser who takes his calves and hogs to market as soon as they have completed their period of rapid growth. In both cases only a minimum number of non-growing absorbers of sun energy are allowed to survive as breeding stock.

With this understanding of the mechanics of the world of undisturbed nature we can explain to the fish pond owner that not only is there no reason to shoot kingfishers and herons as he seemed to believe, but that probably their presence on Long Pond had a lot to do with the good bass fishing. Fish consume food in proportion to their weight, so the fish-carrying capacity of a pond is a fixed number of pounds of fish rather than a definite number of individuals.

Fish are so prolific that without kingfishers, water snakes, herons and other fish-eaters to thin out young bass as they grow, the population when it reached the total carrying capacity of the pond, might consist

Saprophytic flowering plants, like this Indian pipe and the more abundant fungi, play a very vital part in the economy of the wildlife community through promoting the breaking down of organic wastes and the release for reuse by green plants of the nutrients locked up in them.

*Helen Cruickshank*



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*Howard Cleaves*

The omnivorous black bear, largest mammal of many forest communities, occupies the end position in many food chains, short and long.

of a great many small fish of little or no value for fishing, rather than a few big ones such as every angler likes to catch. In both cases the pond would be carrying the same number of pounds of fish but the weeding effect of a high population of fish predators will have made a lot of difference in the usefulness of such fish to man.

#### FOOD BASE AND POPULATION

Meat-eaters or predators can exist only in such numbers as the population of their prey makes possible. One of the most fundamental of all the laws that govern the biome organism is this rule that the abundance of any animal is directly dependent on the available surplus population of its food organism. Strangely enough a great many sportsmen still believe the exact opposite to be the case, and they

continually persecute a long list of animals that they term "vermin."

Such persons fail completely to appreciate that any wildlife community is so organized that many of these predator-prey relationships result in a delicate internal balance, the preservation of which is essential to the health of the biome. Many predators play the role of governors in maintaining proper ratios between various parts of the biome organism, much as the ductless glands keep the functions of the human body in balance. To persecute as predators and seek to eliminate organisms which have become, through evolution, an integral part of the organization of a biome is to risk serious disturbances within that biome—disturbances that are often of such magnitude that the health of the whole community is upset causing repercussions on all the organisms that compose it, and upon man who seeks to exploit it.

The biome concept indicates the wisdom of taking the game crop as soon as possible after the young of the season mature. Otherwise nature starts the harvesting herself. It also makes us realize that the only way to increase a desired wildlife species, once we have the habitat at the stage of the biome's development most favorable to the species in question, is to encourage its food organisms. Finally, it indicates that we do not need to worry about the animals that prey on game species because, if we harvest the game crop soon after it is produced, these predators must automatically adjust their numbers to fit the reduced population, or compensate by increasing their pressure on unaffected surplus populations of non-game species which they normally include among their prey.

#### EVERY SPECIES NEEDS NATURAL ENEMIES

Evolution, or as we might say, nature's system of trial and error, has produced within these communities a balance so perfect that unless man interferes, it is apparently impossible for any member to kill off another. Each, as we have seen, lives on and controls the surplus population of the species it eats. To the best of our knowledge no wild predator has ever exterminated its prey. In fact, if such a thing were possible, we would expect wildlife communities to be shrinking and getting small with fewer and fewer species present and shorter and shorter food chains. Actually the whole history of millions of years of evolution has apparently been a steady progress in the other direction. Thus the hawk-hating, crow-hating, fox-hating sportsman who believes these animals are exterminating his favorite game species is worried about something that has

never happened, and apparently never can happen.

#### LANDSCAPE PROVIDES A KEY

Far more can be learned in the field about practical conservation than from books. Keep asking yourself as you go from one type of area to another, "Is the community I see now the stable climax for this region, or is it a passing developmental stage?" If it is clearly changing, ask yourself—"What was the area like a few years ago, and how will it look a few years hence? What animals were present that are now gone, and what present species may soon vanish?"

Ask yourself of any given animal, "What role does it play in this community?" What feeds it, what does it feed? What other important influence does it exert on other members of the community? How soon is the dominant process of plant succession likely to alter the present area so that the community will no longer provide a suitable habitat for this animal. What steps would be necessary if one wished to stabilize the community now occupying the area in order to hold it at its present stage of development and maintain more or less permanently a suitable environment for the animal in question?

Just as is the case in any science, there is no simple key to a complete understanding of the problems of wildlife conservation. This article is just a brief introduction designed to show how animals and plants live not as isolated organisms but as parts of closely-knit living communities. Such knowledge is basic for any work in conservation and a general understanding of it by the public will be necessary before the present wildlife conservation movement can achieve its final objectives. To conserve wildlife, first understand how it lives.

# THOREAU— and bird songs celestial

By Walter Harding

ORNITHOLOGISTS have long pondered over the problem of reproducing bird songs. Elaborate charts and special musical scales have been devised to record them. Whole vocabularies of sense and nonsense syllables have been created. But none of these have proved entirely satisfactory to the sensitive birder who knows from experience how far they fail to express the sensuous explosion of pleasure that is contained in a bird song heard in the wilderness or the hurly-burly of a city park. There is an out-of-this-world quality that the scientist has failed to catch. Indeed, there is much in nature that cannot be expressed in terms scientific. Nature is an art as well as a science. Perhaps it is even predominantly an art. That is why the data of the scientist is often as cold and unemotional as his own blood. It takes the artist to make the living live.

In the mid-nineteenth century, when natural science was just discovering itself and, like all beginners, raising hopes far greater than it could ever accomplish, there was one voice that still held out for the artistic interpretation of nature. Although he could be a well-trained scientist, and although he counted such cool scientists as Agassiz and Thaddeus Harris among his personal friends, he kept the scientific attitude from narrowing his out-

look on life. He kept his outlook broad, his horizons wide. He regarded all nature with the refreshing naïveté of the artist. Today his writings live while those of some of his friends are forgotten by all but a few specialists. His very name has become a household (or should we say "an outdoor") name with nature enthusiasts the world over—Henry David Thoreau.

Thoreau's bird notes, imbedded in his *Journals*, are as artistically unscientific as the rest of his nature writings. He could and did make many errors: constantly confusing the songs of the thrushes, calling summer residents winter visitors and *vice versa*, and spending years in unsuccessfully tracking down his mysterious night-warbler—which to any bird student is quite obviously the ovenbird, a species which he knew perfectly well in daytime. But despite all the weaknesses and errors in his ornithology, he heard his bird songs with the ear of a musician and somehow managed to catch their beauty on paper as have few others. There is a facile touch about his pen that brings the woods and the fields, the faint perfumes of the wildflowers, and above all the melodic beauty of the bird songs immediately and vividly to mind. Few birds were too rare to escape his notice. No bird was so common as to provoke his contempt. He listened to the robin and

the Blackburnian, the crow and the veery with equal reverence.

For him the song sparrow "set the midsummer day to music," its notes "sprinkled on the air like drops from a rill, as if its strain were moulded by the spray it sat upon." While the winter wren, which he heard in the then-wilds of New Hampshire's beautiful Franconia Notch, reminded him of "a fine corkscrew stream issuing with incessant lisping tinkle from a cork, flowing rapidly," and he thought that it had pulled out the spile and left it running.

These notes on bird song have been culled from the various writings of Thoreau by Walter Harding, former Secretary of the Thoreau Society, who is at work on another article which will tell us something of this great man's influence on American and international thought. At the present time "Walden" is not only a classic but a best seller and in the words of Henry Seidel Canby, "the full significance of 'Walden' has never been felt until today."

This photograph, hitherto unpublished, is of an old painting purported to have been done by his sister, Sophia, when he was about twenty—years earlier than any other known likeness. Tradition has it that she left it with a Concord friend when she moved to Maine after Thoreau's death. Two years ago this painting came to light in an attic in the neighborhood and it is thought to be the long-missing portrait. Certainly it is very similar in style to her portrait of her brother, John, and resembles in facial structure the known portraits of Thoreau. The painting is now in the Thoreau Library of Walter Harding.

He could find joy in even the few bleak notes of winter songs. The snow buntings sounded like "the rattling of nuts in a bag, as if a whole binful were rolled from side to side." The nut-hatches answered each other "tit for tat,—on different keys . . . like vibrating watch-springs." And with the approach of spring, the sound of the flicker, *up up up up up up*, was like the note of an alarm-clock set in the fall to wake Nature up months later.

Bird songs had their humorous side, too. The bittern, which he had seen beating along, like a long ungainly





craft, or a revenue cutter, sounded as if "he had taken the job of extending all the fences into the river to keep cows from straying round." The cowbirds' contortionistic effort at song sounded like "milk bursting out a sort of music between the staves of a keg." The rusty blackbirds seemed "laboring together to get out a clear strain, as it were wetting their whistles. . . . disgorging or spitting it out, like so much tow, from a full throat, and concluding with a clear, fine, shrill, ear-piercing whistle." That fountainhead of joy, the bobolink, seemed to be touching the strings of a water organ, and his notes falling in liquid bubbles from his throat. "The meadow is all bespattered with melody. His notes fall with the apple blossoms, in the orchard. The very divinest part of his strain dropping from his overflowing breast in globes of melody."

When other birds were still, he had the screech owls to fill the long evenings at Walden Pond with sound. "Their dismal scream is truly Ben Jonsonian. Wise midnight hags! It is no honest and blunt tu-whit tu-who of the poets, but, without jesting, a most solemn graveyard ditty, the mutual consolations of suicide lovers remembering the pangs and the delights of supernal love in the infernal groves. . . . *Oh-o-o-o-o that I never had been bor-r-r-r-n!* sighs one on this side of the pond, and circles with the restlessness of despair to some new perch on the gray oaks. . . . I rejoice that there are owls. Let them do the idiotic and maniacal hooting for men. It is a sound admirably suited to swamps and twilight woods which no day illustrates, suggesting a vast and undeveloped nature which men have not recognized. They represent the stark twilight and unsatisfied thoughts which all have."

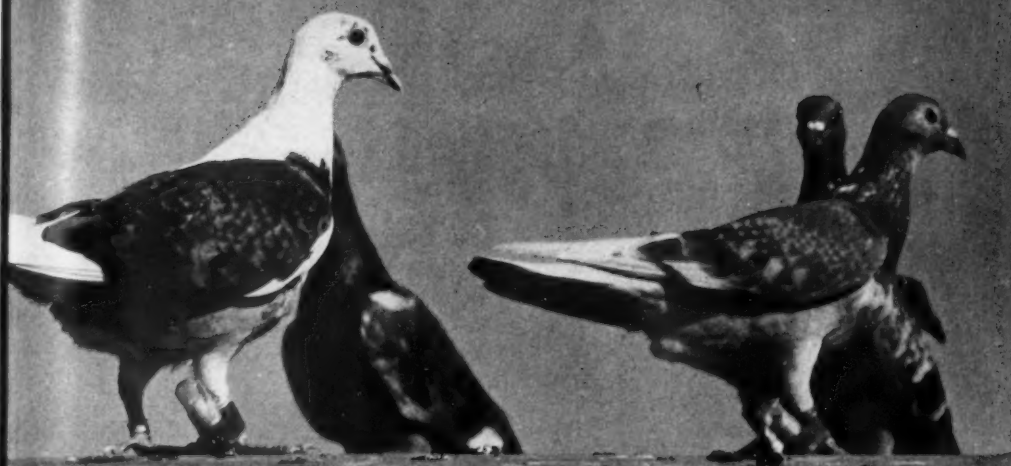
Spring may have brought thoughts

of cherry blossoms to Housman and of love to Tennyson's famed young man, but to Thoreau spring was a time for bluebirds. The air was a foundry full of molds for casting bluebird warbles, "the blue curls of their warblings,—harbingers of serene and warm weather, little organ rills of melody trickling here and there from out the air, their short warble trilled in the air reminding of so many corkscrews assaulting the ice and snow to melt and the streams to flow."

But loveliest of all, the wood thrush, "so superior a strain to that of other birds. I was doubting if it would affect me as of yore, but it did measurably. I did not believe there could be such differences. This is the gospel according to the wood thrush. He makes a sabbath out of a week-day. I could go to hear him, could buy a pew in his church." Little wonder that he claimed the outdoors as his only church, the Concord his only sacred river, the songs of his beloved birds his only hymnology, that he prayed, "Oh, bless the Lord, O my soul! bless him for wildness, for crows that will not alight within gunshot! and bless him for hens, too, that croak and cackle in the yard!"

Thoreau listened with the ear of a musician and recorded with the soul of an artist. One does not learn the number of syllables in the song of the field sparrow from his *Journals*, nor even the tone and pitch of the warble of the Nashville. But one finds there a contagious joy that takes one out into the fields and woods. He was not an ornithologist but a bird lover. As such, his words hold their vitality and fascination even a century after they were first written. Scientific methodology has its fluctuating fashions, but bird songs and human hearts remain the same endlessly. Henry Thoreau possessed both.





## Planes and Pigeons

Part of every bomber's crew, the pigeon plays an important role in the Army Air Forces

*By Henry M. Parker, Second Lt., Air Corps*

**H**OMING pigeons, long used as messengers in time of war, are playing a new and increasingly important role in this the second World War. The tremendous improvement in and utilization of aircraft in modern warfare which has so greatly changed the aspect of today's combat has resulted also in the employment of pigeons by the Air Forces of the Allies and Axis Powers alike, whereas before they had existed as a part of the Ground Forces alone. The methods of training and the employment of pigeons by the Ground Forces are today generally well known, and names such as "Cher Ami," "Spike," "The Kaiser" and "The Mockler" of World War I, and "Yank" and "Lady Ester" of recent campaigns merit the familiarity of fame; however, the de-

tails about Air Force birds,—how they are used, how trained, and how they acquit themselves in combat are so recent as to be little appreciated except by those in immediate contact with this fascinating work. Yet, such airborne birds as "Winkie" of the R. A. F., have joined the pigeons' "Hall of Fame."

Air Force pigeons may be used in all types of aircraft, but their chief employment to date has been in bombers, patrol planes, fighters and blimps according to the Army plan which calls for pigeons as a means of communication when other mechanical means fail or cannot be used for fear of detection by the enemy. In addition, they may be released from planes carrying urgent reconnaissance data and, in such capacity, serve a



*Photographs by Army Air Force*

need that cannot be filled by any known device of science.

The most important job entrusted to Air Force birds is, of course, the saving of human lives—the lives of our men who carry the war to the very homes of the enemy, to Berlin and to Tokyo. "Winkie" is such a bird, and her now familiar story of stamina and courage against incredible odds epitomizes the chief aim and purpose of all airborne messengers. With records such as hers, it is small wonder that our airmen care so tenderly for their birds and consider them as essential members of each bomber's crew, for when you are floating around on a tiny raft in a trackless ocean unable to use your radio for fear of being picked up by the enemy,—or worse yet, with your radio lost or smashed and useless,—how much more hope there is if you know that a trained, reliable homing pigeon is speeding your S. O. S. to a friendly base!

Over land the story is the same; a

**There is a definite art to releasing a pigeon from a fast-moving plane. When special launching-containers are unavailable, the bird is held horizontal with head facing nose of plane, then released with a swift downward and outward motion.**

plane forced down in enemy territory cannot use its radio, but fast and silent, a pigeon carries the message with complete details and exact location of the crash to the home airfield, and a rescue of the experienced personnel is effected so that they may live to fight another day.

A second major use for pigeons carried on planes is in the ceaseless battle we must wage against the enemy submarines which take their daily toll of men and materials on our farflung shipping lanes. Often a blimp or long range patrol plane flying at considerable altitude will sight an enemy undersea craft when it comes to the surface. To radio the submarine's position to the nearest destroyer or bomber base would be useless, for the message would be picked up by the enemy's own alert

radio operator, and the marauder could submerge at once and escape. But release a pigeon, which bears this information, and the submarine's commander is not likely to realize that his boat has been discovered until the shells or bombs start dropping around his surfaced and thus vulnerable craft.

As bearers of important reconnaissance data, maps and aerial photographs, pigeons are indispensable. Released from an observation plane a few seconds after information has been obtained, a bird will often have the film or vital map back to headquarters before the plane returns from its flight. The importance of this saving of time should not be minimized, for with material of this sort a comparatively short delay may well render it utterly valueless. When an observation plane carrying important information is forced down, the pigeon's role is obvious and his worth unquestionable. In order to deliver this bulkier type of message, a special large tube may be employed which is strapped on the bird's back in such a way as not to interfere with its flight.

For such difficult assignments as those just mentioned, the Air Force pigeon's training is necessarily rigorous and somewhat specialized. The birds must be able, if necessary, to return home over a distance of several hundred miles, often the majority of the way over water, which requires extreme stamina and very careful training. They must become used to the noise and motion of the planes which will carry them far into enemy territory. And, most important of all, they must be able to undergo the strenuous experience of being released thousands of feet up in the air at speeds of from two to three hundred miles per hour, and this at the very beginning of their long grueling

homeward flight which is, itself, beset with a multitude of dangers. Perhaps the most essential qualification of the individual bird is reliability, for human lives are often dependent on its safe and swift arrival at the home base. Such responsibility brooks no loitering, and must not be made to depend on a merely "average" flier. With such rigid specifications demanded, the Air Force pigeon represents perhaps the most highly developed bird of its kind. Its early training flights are carefully checked and sequenced to lay a firm foundation of routine homing ability in the young bird. As it reaches the full power of physical development, longer and ever longer flights are arranged until the bird is capable of returning regularly not from twenty, or fifty, or even one hundred miles, but from two or three hundred miles away.

At this juncture the birds are ready for their first release from an airplane. After becoming familiar with the plane itself and the roar of its engines, they are taken up, perhaps a thousand feet or so, and released at a short distance from their home lofts; here they experience for the first time the terrific rip of the slipstream and the varied sensations of height and air conditions entirely new to them. After the shock of these first releases from an airplane has been successfully undergone, the remainder of the training consists merely in an overall increase in all the factors involved—longer distances, higher altitudes, varying weather conditions, and faster planes, until the birds will return from two or three hundred miles out of fast bombers flying up to twenty thousand feet or more above the surface of the earth. A bird with such capabilities is an example of the crack homing pigeon of the Army Air Forces.

As might well be expected, there is a definite art to launching a pigeon from a fast moving plane. Throwing the bird out carelessly or haphazardly is just plain murder, for in such cases the powerful slipstream will smash it against the fuselage or tail assembly of the plane, or, if the wing feathers are ruffled, the force of the wind will tear them apart and snap the wing, hopelessly crippling the pigeon.

To obviate such results, many experimental containers have been developed and tested to protect the bird in its initial plunge, but better than any of these in proven tests is a simple paper bag. This bag, when properly prepared and with the pigeon placed inside, forms a protective covering against the strong air currents and is easily opened by the bird's own efforts, after the whole has fallen free from the plane. In cases of extreme altitude, a special container may be employed which automatically opens at a lower altitude more suitable for the bird's flight.

At times, however, it is necessary to launch a bird free, when no type of protective envelope is available, and here extreme care must be utilized to insure the bird's safe release. With wings sleeked and grasped firmly yet gently against the body near the tail, the bird must be held horizontal with the head facing toward the nose of the plane, and then released with a swift downward and outward motion; if so treated, the bird will be free of the plane before its wings open to begin the homeward flight.

Should the airplane carrying birds crash into the ocean, a normal container would not protect the pigeon from drowning, or at least from a thorough soaking which would render it unable to fly, hence another specialized container has been developed to avoid such an eventuality.

This box, made of metal, has a shock absorbent lining, and an ingenious device built into it prolongs the breathableness of the air when the container is sealed, so that the bird will live comfortably for at least an hour.

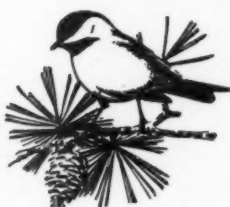
The radio operator of the ship has charge of the pigeons during all flights, and it takes but a few seconds for him to seal the box and sling it onto his back. When thus sealed it has a buoyancy lift of twenty-five pounds and is fully capable of supporting a man in the water, thereby doubling as a life preserver. In addition to this, the outside of the container is coated with phosphorescent paint enabling it to be readily seen at night.

The combat record of airborne pigeons, as seen through records of the Royal Air Force for the years before the United States was actively in the fight, are little short of extraordinary. Although we may not publish exact figures, well over eighty per cent of all combat messages arrived safely and this amazing record is being sustained if not bettered today. Another very interesting possibility for Air Force pigeons includes the dropping of pigeons in containers by parachute to sympathizers behind enemy lines as the British have already done successfully in the Occupied Countries of Europe.

Although today's warfare is one of deadly mechanization, the pigeon has won a secure place in the military world. Before the war is over, new and more lethal weapons will undoubtedly be developed superseding those now in use, today's planes may well give way to the super-bombers and fighters of tomorrow, but the sturdy pigeon with its baffling ability to find its way home, seems to be here to stay.



## The Director Reports to You



**M**ARK down July 10, 1944, as another red-letter day in the history of your Society. In the years to come, we shall doubtless look back on this opening day of the First Summer Session at the Audubon Nature Center in Greenwich, Conn., as a landmark in a movement to bring outdoor nature education to the very doorstep of the city dweller.

### UNIQUE OUTDOOR CLASSROOM

Although New York City contains many great halls of learning in which practically every phase and technique of education may be sampled, never before has a 280-acre outdoor classroom functioned within thirty-five miles of Manhattan! True, the four summer sessions at the Center are limited to twenty enrollments each, but from this small beginning who will say what far-reaching results may spring? Not only do we hope to give such courses more frequently ourselves, but we hope that educational institutions throughout the land will someday have outdoor classrooms such as ours in which they will use a comparable ecological approach in teaching.

When you read this, the first two-week session (July 10-22) will have been completed, and the second session (July 24 through August 5) will be in progress. However, there may be a chance for you to participate in one of the two remaining sessions,

covering the periods from August 7-19, and August 21-September 2.

Although these courses come under the classification of field observation in nature education, this term is not to be construed in the narrow sense of discovering the out-of-doors as an end in itself, but in the broad sense of understanding the environment in which man lives as an individual and as a social being. You will be able to take the knowledge and experience gained in these courses home with you and apply it to your own particular field of endeavor, to your own particular community problems. Practical application of knowledge is one of the underlying themes of all educational activity at the Audubon Nature Center.

The need for field training for leaders is so acute that our obligation to launch this new program has seemed to us inescapable. General conditions contrive to make it unwise to attempt operation of our camp in Maine, but the Center's proximity to New York City and other well-populated cities makes transportation and the obtaining of supplies feasible. The initiation of a new project always requires effort and cooperation both before and during its operation, and we hope that every one who attends the Center's summer sessions will do so in the spirit of conquering all the extra difficulties and drawbacks occasioned by wartime.



#### AN EXPERT STAFF

The sessions are under the direction of Dr. Richard L. Weaver. He is ably assisted by Miss Farida Wiley of the American Museum of Natural History, who has had varied prior experience as a leader in nature education, including membership on the staff of the Pennsylvania State College Nature Camp; and by Joseph M. Cadbury, teacher of young children in the Friends School in Germantown, Pa., and for six summer seasons a member of the staff of the Audubon Nature Camp in Maine. Their efforts are being supplemented by expressions of views from a number of visiting authorities and by occasional assistance from members of the Audubon House staff.

All business arrangements in connection with the arrival and departure of enrollees and regulations for procedure while at the Center are under the skilled guidance of Carl Buchheister; and Harriet Buchheister is supervising the purchase, preparation and service of the food; all with benefit of experience gained in seven seasons of comparable direction in Maine.

To prepare to house and feed students at Greenwich this summer was no mean task, involving considerable alterations and installations with regard to water supply, electricity, furniture and general painting overhaul. In this we have had the generous aid of several directors in addition to available income of the maintenance fund so munificently provided by Mrs. Reese.

With comfortable accommodations in the beautiful, old, colonial house, a nature museum well provided with exhibits and workshop, and an attractive nature trail well labeled, it would seem—and we shall hope—that the

students at the Center this summer will enjoy a most profitable and pleasant experience, prepared to return to their own communities refreshed, and replete with new ideas to apply and use in their teaching and leadership programs.

#### BALANCING THE BOOKS

"The fiscal year," "closing the books," "auditor's reports" are phrases you expect to use in a business office, but these phrases are current in Audubon House in early summer, when our fiscal year comes to an end on June 30, and the temptation to figure out percentages of gain in memberships, subscriptions, contributions received and other matters becomes irresistible. The results are indeed encouraging—and stimulating to still further effort in the coming year:

Increase in annual dues paying members .....	19.8%
Gain in receipts from dues .....	20.1%
Increase in number of Junior Clubs .....	37.8%
Increase in magazine subscriptions other than membership .....	16.8%

A new and special membership folder was printed and mailed out to inform carefully selected lists of the activities of the Society and explain how they could help support the cause through membership. The increase in magazine subscriptions, however, points directly to you and to your own recommendations among your friends and acquaintances, for no subscription promotion has been sent out from this office on the magazine. We hope that you will keep up the good work, for not only is the magazine an educational influence in itself, but it also gives those who are interested in the out-of-doors and conservation an insight into the meaning of the work of the Society and eventually creates in them the desire to become members and help support its program.





The textbook at the Audubon Nature Center is the "Living Book of Nature." Dr. Weaver, Educational Director at the Center, is shown above at the upper left.

The large increase in Junior Club enrollments has pointed up the need for a source book for Junior Club advisors, many of whom have never used Audubon children's materials before. In the past, AUDUBON MAGAZINE has been a part of the literature received by each teacher who sponsored a club of twenty-five or more members, but beginning with the new school year next September "The Audubon Teacher's Guide," a 96-page

booklet edited by Dorothy Treat, will be sent instead.

#### SCREEN TOURS IN DEMAND

Reservations for Audubon Wildlife Screen Tours should be placed far ahead, and the 1944-5 schedule is already filled. Among the twenty cities which have signed up for five lectures each are eleven new ones—Sioux City, South Bend, St. Joseph, Cleveland, Ft. Worth, Tulsa, Battle Creek, To-

peka, Louisville, Buffalo and St. Louis. Enthusiastic repeaters are Kansas City, Indianapolis, Des Moines, Milwaukee, Detroit, Chicago, Cincinnati, Omaha and Minneapolis.

So far, Audubon lecturers are scheduled for 246 appearances next season, as follows:

Audubon Wildlife Screen Tours . . . . .	105
Summer Camps . . . . .	8
Grade Schools, Junior Highs and Children's programs . . . . .	22
High Schools, Academies, Private Schools . . . . .	40
Colleges and Universities . . . . .	14
Affiliates and other organizations (other than Screen Tour Cities) . . . . .	31
Women's Clubs and Garden Clubs . . . . .	7
Miscellaneous . . . . .	19

#### PROGRESS REPORT ON JACKSON HOLE CONTROVERSY

The Barrett bill to abolish Jackson Hole Monument in Wyoming apparently is not likely to be voted upon in the House of Representatives until after the presidential election in November. An effort was made to obtain quick vote by bringing it out of the Rules Committee, to which it had been referred. Your Society sent representatives to Washington to confer with Congressmen and register the Society's opposition to the bill. At the same time, the following letter, which will serve to give you the gist of the matter, was mailed on May 29 to every member of the House of Representatives:

"A conservation matter of national importance will come before the House when the Barrett Bill, H. R. 2241, to abolish the Jackson Hole National Monument in Wyoming, will be brought up for vote this week. The National Audubon Society, a conservation organization with nationwide membership is opposed to the passage of this Bill and respectfully urges that you vote against it.

"There is danger that the red herring of argument over states' rights be introduced into consideration of this Bill. As a matter of fact, no question of states' rights is involved.

"Since 1906, 71 national monuments have been created by seven Presidents, five of them Republicans. Some of these monuments are ten or more times the size of the Jackson Hole National Monument.

"Of the 221,610 acres contained in the Jackson Hole National Monument established in March, 1943, 77% were Federal lands, and the establishment of the Monument merely shifted them from one Federal jurisdiction to another. 15% of these lands were purchased by Mr. John D. Rockefeller, Jr., and offered to the United States as a gift for inclusion in the National Monument. Only 16,101 acres representing roughly 8% of the total acreage, remains in private hands. These private lands were recently assessed for tax purposes at only \$405,000 and involved annual taxes of only \$8,750.

"The Monument proclamation does not affect valid existing rights. Private owners enjoy the full use of their property as they did before the Monument was established. The State of Wyoming retains the same jurisdiction that it held over the area prior to the establishment of the Monument and can be divested of that jurisdiction only by a voluntary act of the Wyoming state legislature.

"The loss of taxes to Teton County, Wyoming, as a result of the gift of the Rockefeller lands would approximate \$10,000 annually. The Federal Government recognizes that this is an important consideration in the finances of the county and is in favor of the bill now pending in Congress to provide for allocation to the state or states for the benefit of the counties in which national parks and monuments are located, of a percentage of the revenues derived from the operation of such parks or monuments.

"The Jackson Hole region is nationally famous as an area of great scientific and scenic interest. It is important from the standpoint of wildlife conservation. Its recreational use for the benefit of the people of the nation as a whole would seem to us to represent its highest and best use. To abolish this monument would in our opinion constitute a purely negative action. Constructive action, in our opinion, would be to maintain the Monument and work out a solution of the local tax problem and any other minor problems requiring attention."

#### SUPPORT THE WALLGREN AMENDMENT

What appears to be a pork barrel omnibus bill, H. R. 4485 authorizes the construction of certain public works on rivers and harbors for flood control and other purposes. To warrant taking a position on this bill, as a whole or in detail, would entail exhaustive study. Without, therefore, committing ourselves one way or the other on the bill itself, we urge you to encourage your representative in Congress to wholeheartedly support the amendment to H.R. 4485 presented by Mr. Wallgren, in which it is provided that federal investigations to insure the preservation and protection of fishery resources and to develop other biological uses of the waters shall be prosecuted by the U. S. Fish and Wildlife Service.

It also provides that, in the construction of the work authorized by the bill, the Fish and Wildlife Service shall be consulted for the purpose of insuring that the projects incorporate due and adequate provisions for the protection of migratory and resident fish populations, and that otherwise the greatest biological use is made of such waters. To achieve these objectives, the Fish and Wildlife Service is directed to conduct, in advance of the beginning of the actual construction, such surveys and investigations as may be necessary, the cost thereof to constitute part of the cost of the construction project.

This is just the kind of arrangement that conservationists have been fighting for these many years. Many government projects have been car-

Students at the Audubon Nature Center pause along the trail to rest, to observe, to reflect and to digest what they have seen and heard.



ried out without any consideration of the biological consequences having been given at any stage, let alone prior to the initiation of the project!

The inclusion of the Wallgren amendment in H.R. 4485 would represent a great advance and would certainly tend to offset many undesirable features of the main bill.

#### SOME WESTERNERS SPEAK UP

The feeling in our western states runs high at the present time in opposition to regulation and direction from Washington.

As a sample of this, I would refer you to the recorded attitude of the recent assemblage of the Western Association of State Game and Fish Commissioners.

It is distressing to us to learn of their recommendations (1) that all overstocking problems in national park areas be met only by public hunting under permits issued by the state or states in which such area is situated; (2) that the federal government shall not be permitted to acquire additional lands in the western states, except in those cases where specific approval has been granted by the state in which the land is located and then only when there is reserved to the public the right to hunt, fish and trap as provided in the law of the state; and (3) in opposition to proposed legislation that the U. S. Indian Service prescribe regulations as to the taking of fish and other wildlife on federal Indian reservations, on the grounds that such procedure would infringe upon the right of the state involved to control the fish and game within its borders.

There is further reflection of the degree of feeling current on this subject in that plank in the platform adopted by the recent Republican National Convention, entitled "Problems

of the West," in which the party goes on record as favoring the withdrawal or acquisition of lands, for the establishment of national parks, monuments and wildlife refuges, only after due regard for local problems and under closer controls to be established by the Congress.

#### THREAT TO MIGRATORY BIRDS

Your Society has gone on record with appropriate federal officials as to its views on the migratory bird hunting regulations for 1944. In so doing, stress has been placed upon the great prospective increase in hunting pressure as men are mustered out of war service. Experience immediately after the last World War demonstrates that we should expect such increase in hunting pressure immediately after this one.

Therefore, it behooves the responsible agencies to "play safe," maintain and build up an adequate surplus, in order that too great a drain on the available supply will not take place.

We have also stressed the fact that precipitation and snow cover, generally speaking, have been far less than usual throughout the past winter, such that there is reason to expect less favorable water conditions, with inevitable consequent effect upon the welfare of the continental waterfowl population.

And, by the way, in an effort to remove jurisdiction of the President of the United States over one phase of the hunting regulations (a power specifically granted him by the Migratory Bird Treaty Act), Representative Simpson of Illinois introduced last November H. R. 3743 (the companion bill in the Senate is S. 1986) which would definitely provide for the legalization of the use of live decoys in duck hunting. To the restoration of this device for increasing

the kill, your Society is strongly opposed. It is also opposed to any legislation which would take the matter of such regulations out of the hands of the President and his advisors, the Secretary of the Interior and the Director of the Fish and Wildlife Service, and make them subject to the whims of Congress.

#### BIG BEND NOW A NATIONAL PARK

In June, at a special White House ceremony, the State of Texas presented to the United States 691,338 acres of land for the purpose of its inclusion in the Big Bend National Park. Thus comes to fruition a very fine project, and the citizens of the Lone Star State may well be proud of the part they have played.

By action of their legislature, the state put \$1,500,000 into the purchase of private lands in order that this park might be set up. In so doing, Texas has set a splendid example—one which the state of Florida might well emulate.

Until recently, Florida had little, if any, money available to spend for such a purpose, but now that it has leased oil exploration and drilling rights far and wide, and is receiving substantial income therefrom, it would seem highly in order that that state should devote the necessary sum to the acquisition of private lands in that part of southwest Florida in which it has been hoped for years there might be established an Everglades National Park or federal wildlife refuge.

#### WE NOMINATE

The official nominating committee, appointed to bring in a slate of directors for consideration by the members for election at the annual meeting

next October 17, has reported that it nominates for reelection for three year terms Mr. Aubrey Drury of California, Mr. Gayer G. Dominick of New York, Mr. Ludlow Griscom of Massachusetts and Dr. William E. Wrather of Texas.

It also nominates for a three year term, ending in 1947, Dr. E. Laurence Palmer of Cornell University, Ithaca, New York. Dr. Palmer has been in the thick of wildlife conservation matters in this country for a generation, and may be counted upon to participate actively in the affairs of your Society. He is Professor of Rural Education at Cornell. He is, among other things, famous for his series of Rural School Leaflets, and regularly writes the School Page in *Nature Magazine*.

It is with regret that we face the prospect of retirement as a director, under by-law provision, of Professor J. R. Dymond, Director of the Royal Ontario Museum of Zoology, at Toronto, Canada, and at a recent meeting of the directors a resolution, expressing such regret and deep appreciation of Professor Dymond's fellowship and aid to the Society, was unanimously adopted.

#### DON'T FORGET OCTOBER 14-17!

May we remind you that, in connection with the annual members' meeting to be held at Audubon House on Tuesday, October 17th next, it is planned to hold a gathering with scheduled events as outlined in the Director's column in the June issue of this magazine. In accordance, however, with the request of our Government as to limitations on civilian use of transportation facilities, we shall not stimulate attendance by those who would have to come from a distance.



# Bird Behavior

## PRETENTIOUS PEACOCK

By Captain Steven M. Barker

AT the end of the African campaign near a now famous town the fighting reached a climax—a fierce and bloody one. After building some bridges my unit “dug in” in a farmyard behind a low hill. The tanks assembled here, and then sneaking around the hill, roared into an attack. All day and all night wounded men crawled back from crippled tanks to the poor shelter of that hill with its French farmhouse and, believe it or not, its peacocks.

There were a dozen or so beautiful males, slick hens and snow white ones. Excited by the shells that were landing among us, they uttered long piercing shrieks. We watched them from our holes.

That night the tanks rallied there and other great weapons, columns of them, lumbered up to join the fight. At dawn the tanks opened up and once more charged around the hill into the mine fields and 88s. The supporting weapons—great tank-like monsters—opened their throttles and set off close behind, moving through the courtyard in single file.

Suddenly one of the leading weapons stopped with a lurch bringing to a halt the long snapping and barking column behind. I looked up and saw a peacock defending the road.

He arched his tail with sharp jerks, lowered his head and stamped.

The motor beside me idled, then roared like thunder.

The bird straightened, then crouched and flew at the treads, beating its wings against the monster. Once again the peacock stood in the path, tail spread.

The huge machine moved forward

two feet. In a frenzy the peacock attacked and then stood back.

The great steel gun barrel slowly swung from side to side, then pointed downward and wagged threateningly. It pointed at the bird but the arrogant bird ignored it. The driver's hatch flew up and a helmeted head and a stream of white-hot profanity came out. The peacock puffed its chest.

Behind, motors yelped and howled like impatient hounds. Around the hill came the crash of artillery slamming steel. Overhead came the quick “Yoww” of an 88 looking for me. Jerry couldn't see us, but he knew we had something there behind our low hill and he began to plaster us unmercifully with 88-mm. artillery. A lot of it was exploding in the tops of the few trees, blasting the people below who huddled in trenches or open-topped vehicles and rattling off the tanks.

But the peacock stood his ground.

The column jostled and pushed to see what the hold-up was.

Then a man climbed out of the top of the steel giant wearing a smile. He clambered over it and dropped to the ground. The bird attacked him. He stood his ground. He waved his arms and lunged at the bird. The bird moved off the road.

Laughing, the man climbed in, motors roared, and the column charged. Every hatch was open in that charge, and every man was laughing. This time they kept going and they didn't stop until they came to the sea.

I saw that peacock a week later. It seemed to me he wasn't quite so cocky as before. The other birds were unhurt.

**COMMENTS:** After all—what is war to a peacock? Such is the driving force of blind instinct that it makes no

allowances for anything outside the past experience of the species. Here is territorialism at its best which was "liberated" apparently by any large object moving into the area that the peacock claimed as his own even though it did not faintly resemble another peacock. It is possible, of course, that the bird may have seen reflections of itself in some part of the armored vehicle but since it also attacked the driver, it seems that the reflections were not necessary.

Nearly everyone has experienced birds of one sort or another fighting their reflections ("shadow boxing") in windows or highly polished automobiles that happened to be parked in their "territories." Captain Barker's experience was the same sort of thing on a grander scale.

Incidentally, Barker was himself in this action—received the Purple Heart decoration and citation for gallantry in action. The above story is part of a letter to me written during his convalescence in an African hospital.



#### NESTING BEHAVIOR OF CERTAIN INDIVIDUAL AMERICAN ROBINS

By F. W. Preston

One day I observed a robin bringing grass as a nesting material to a second-story window sill, which was one of my office windows. Immediately thereafter I saw another one bringing grass to the next window sill, and was much surprised that two pairs of robins should agree on nesting so close together. Examination of this unreasonableness disclosed that there was only one pair of robins, and the male and female were each building a nest, some ten feet apart. Neither bird took

the slightest stock in the other's nest.

The female completed her nest of hay, but used no mud. The male went to great trouble to make a good nest with a clay plastering, and both were finished about the same time. I thought the female might be impressed with the better job of her mate, but she paid no attention whatever to it, and proceeded to lay four eggs in her own, and to incubate. The windows faced south, and it was very hot. As she shuffled around, the wind loosened the grass blades one by one and they gradually blew away.

As long as she sat on the nest, the male would hunt over the ground of his territory. Whenever she left the nest, he would fly up to the window sill to guard the nest, not her nest with the eggs, but his own on the next window sill.

In a few days the clayless nest was mashed flat and half gone. The eggs rolled out one by one and dropped twenty feet to the ground. The birds deserted the nest, and I thought the female might then use the nest made by her mate. But no, they built a third nest on the machinery in the blacksmith shop, which had an open window, and ignored the male's nest altogether.

In a week or so nothing at all was left of the female's nest. The winter came and went, and next year the male's nest was still good and perfectly usable, and might have lasted three years if we had not disposed of it.

**COMMENTS:** This is a good example of the power of instinct in controlling bird behavior. It is quite exceptional for the male robin to assist in nest building so that the nest this male built meant absolutely nothing to the female bird. It is instinctive for

the male robin to stand guard on the edge of the nest while the female goes off to feed. Apparently this instinct was fully satisfied by his standing on his own nest. Instinctive acts are stimulated by what Loring has called "releasers." In this case the leaving of the nest on the part of the female stimulated a return reaction on the part of the male. But since he had become attached to his own nest by repeated returns to it in building it and had developed no attachment to the nest of the female, his "return" instinct was fully satisfied even though it served no practical purpose—just as a setting hen is perfectly satisfied to sit

on door knobs instead of eggs when her instinct to incubate activates her behavior.

The fact that the female built a careless nest with no mud is an entirely separate problem. Perhaps it was her first attempt. While birds, apparently, build nests by instinct, they nevertheless seem to improve with practice. It is possible that they are likewise influenced by the type of nest in which they have been raised by having the visual image of it deeply impressed upon them. In this case the female robin may have been raised in a nest where the mud middle layer was never visible.



### ***To the List of Gift Subscriptions Sent to Libraries in Military Camps and Hospitals, we add the following***

Five subscriptions, each, from F. H. Pough of St. Louis, Mo., Cathryn V. Riley, Patchogue, N. Y., Lt. Col. J. P. Willcox, Camp Lejeune, N. C., and the New Canaan Bird Protective Society. Three subscriptions each, from Col. Spencer Cosby, Washington, D. C., and Sassafras Bird Club of Amsterdam, N. Y. Two subscriptions, each, from Mrs. George Baker, New Haven, Conn., and Dr. and Mrs. John L. Carpenter of Alexandria, Ind. One subscription, each, from U. M. Carlton, Cambridge, Mass., Mrs. A. F. Dillman, Millburn, N. J., E. W. Farmer, Steubenville, O., Ethel M. Heuser, St. Louis, Mo., Mrs. C. R. Lindsay, Jr. and her granddaughter Katharine of Washington, D. C., B. A. Putnam, Chicago, Ill., The Silver Cross Circle, Berkeley, Calif., Mrs. C. B. Stoner, South Orange, N. J., and Katharine Tousey, N. Y. C. Gift subscriptions have been sent, also, by three Junior Audubon Clubs—from the Hancock School of Medford, Mass., the Mystic Academy of Mystic, Conn., and the Theodore Roosevelt Bird and Science Club of Melrose, Mass., and one from its sponsoring teacher, Anna E. Brown.

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# MUSIC

OF THE

## OUT-OF-DOORS

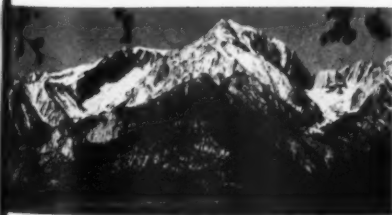
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## The Changing Seasons

By Ludlow Griscom



**A**PRIL seems to have been a relatively cold and wet month practically throughout the United States. These conditions were mildest in California, very marked in the northern states, with a maximum of four times the normal precipitation in Florida; coastal Texas alone reports a dry month. May provided truly remarkable contrasts. It was cool or wet on the Gulf coast; in the interior the first days more cool, with frost south to Missouri May 5, after that suddenly warm. In the Atlantic states, this month was remarkable for warm and pleasant weather; these conditions increased northeastward, so that, near Boston for instance, the month was the hottest ever recorded and the driest in 118 years.

As the period under review covers approximately the second half of the spring migration, we shall follow the fortunes of the tropical wintering species coming north across the Gulf or through Mexico. The cold and backward April brought great waves of birds into the northern states from April 30-May 4; they included a scattering of early records of these tropical birds, which can possibly be correlated with a similar scattering of early dates of first arrivals on the Gulf coast in late March and the first half of April. In Massachusetts, for instance, the missing April towhees and chipping sparrows and the first group of May birds all came in on May 4; with them was a scattering of tanagers, hummingbirds, black-billed cuckoos, magnolia warblers, etc., species not normally due for another week. Mr. Mayfield reports the same thing in Ohio on April 30. On the other hand the migration of this group of species was remarkably protracted; Mrs. Hagar at Rockport, Texas, found some transients after May 15, and this possibly explains a surprise coastal wave in the northeast May 27-28, when many of us thought an early season was over.

The interested observer judges a migration by his returns in the way of the variety of species recorded and the abundance of individ-

uals noted. His good or ill fortune is usually the result of weather conditions rather than the actual increase or decrease of the birds themselves. The extremes of the past May show this very prettily.

1. Florida. Mr. Weston reports the most amazing abundance of transients thanks to cool, wet weather and numerous northerners. The birds coming in over the Gulf piled up along the coast, before moving northward. Many great rarities such as warbling vireo, Blackburnian and cerulean warblers and many uncommon species in numbers.

2. Atlantic Seaboard. One of the poorest Mays in many years. The wonderful warm weather caused the birds to trickle through daily and rapidly. Nearly all observers complain of missing some possible species and small numbers of many.

3. Ohio, Michigan to Wisconsin and Iowa. Same complaints.

4. Missouri. Poor birding, as the migration was practically over by the time warm and pleasant weather arrived.

5. Minnesota. In this more northern latitude, the later schedule of migration caused a damming up in early May. The arrival of pleasant weather later caused a great rush of migrants, which were abundant.

6. The feeble representation of this group of species in Utah and California does not permit any generalizations of comparable interest.

The number of records of "southern" species is again a feature of the spring. Of particular note is the number of prothonotary warbler records from New York City to Minnesota, and an invasion of orchard orioles into Massachusetts. The number of cardinals reported in Massachusetts is now so great that separate listing is no longer practicable.

I have before this commented on the eastward march of the white pelican. The year 1944 produces records from Kansas City, Illinois, North Carolina (February), and Connecticut



(2 at Windsor on May 27). Perhaps this great bird did occur in the northeast in colonial times.

The duck flight was excellent throughout the country except in the northeast, where it was the worst in years. One region reports a decrease in wood ducks; in others they appear to be holding their own. There was an improved migrant flight in New England, and the Great Plains states report more white-fronted geese.

The shore bird flight on the Atlantic seaboard was extraordinary, not only for the abundance of individuals but the variety of species. It was poor in the interior due to high water. There is a report of 2500 ruddy turnstones in one day on Cape Cod, Massachusetts, and even

300 in Ohio, really more remarkable. Good reading is a sight of 2000 golden plover on April 1 in Missouri. A marbled godwit in Massachusetts is the first spring record in the historical period. Woodcock and snipe increases are reported.

There are so many "great rarities" that it is perhaps invidious to single out a portion only of the less local. Yellow-billed tropic-bird, first Massachusetts record; Bachman's sparrow, first Michigan record; Sabine's gull, Monomoy Point, Massachusetts; chestnut-collared longspur, Long Island, N. Y.; and glossy ibis, Staten Island, N. Y.; Cape May warbler, Rockport, Texas; 3 wood duck, Utah.

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DEAR FOLKS:

I pass most of my free time studying the British avifauna. It has been especially interesting to see the species that I have read about in English literature ever since early school days: the skylark—the cuckoo—the song thrush, etc.

In appearance the song thrush is fairly similar to the wood thrush of North America, but its famous song more closely resembles the repetitious rich melody of our brown thrasher.

The cuckoo is a very large attractive species. In flight it bears an amazing resemblance to a mallard. Its notes are entirely different from those of our North American species. In brief, the European bird sounds just like a cuckoo clock and being quite common, its carrying song is one of the striking sounds of the countryside.

I never fail to marvel at the remarkable aerial singing performance of the skylark. It definitely measures up to every expectation that centuries of special publicity have given to it. Time after time I have stretched out in the center of an extensive field of heather and watched the performance with thrilling admiration. The bird rises from the ground with the same quivering enthusiastic interest as our bolink and with ecstatic, incessant song goes circling up and up. When one thinks that the bird has surely reached the peak of its ascent, it continues to ascend with an unabated flow of murmuring rapturous notes. Finally when it is a mere dot in the sky, it faces into the wind and its outstretched wings just floats there singing proudly. Then with wings widely spread the bird drifts slowly to earth as though suspended in a parachute. When it is twenty or thirty feet from the ground, the bird closes its wings and swiftly dives into the concealing heather below. Now I wish that all of you could stretch out in the heather with me and watch this never-to-be forgotten bird performance.

As I look out of the window, I see an impressive array of barrage balloons floating like giant whales in the sky. I can't help thinking of the widespread American contention that in order to support all of the Yanks over here the English had to attach balloons to the island to keep it above water!!

ALLAN CRUICKSHANK

London, England.

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